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The title page should state the title of the paper, initials and name(s) of the author(s), degrees (limited to one degree or diploma) and address(es). The name and address of the author for correspondence should be clearly indicated.

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Summary, Introduction, Materials and Methods, Results, Discussion, Acknowledgment and, References should follow each section beginning on a fresh page.

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Introduction: Clearly state the purpose of the article. Summarise the rationale for the study or observation. Give only strictly pertinent references, and do not review the subject extensively.

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Identify precisely all drugs and chemicals used, including generic name(s), dosage(s) and route(s) of administration. Do not use patients' names, initials or hospital numbers. Include numbers of observation and the statistical significance of the findings when appropriate.

When appropriate, particularly in the case of clinical trials, state clearly that the experimental design has received the approval of the relevant ethical committee.

Results: Present your results in logical sequence in the text, tables and illustrations. Do not repeat in the text all the data in the tables or illustrations, or both: emphasise or summarise only important observations.

Discussion: Emphasise the new and important aspects of the study and conclusions that follow from them. Do no repeat in detail data given in the Results section. Include in the Discussion the implications of the findings and their limitations and relate the observations to other relevant studies.

Conclusion: Link the conclusions with the goals of the study but avoid unqualified statements and conclusions not completely supported by your data. Avoid claiming priority and alluding to work that has not been completed. State new hypotheses when warranted, but clearly label them as such. Recommendations, when appropriate, may be included.

Acknowledgements: Acknowledge grants awarded in aid of the study (state the number of the grant, name and location of the institution or organisation), as well as persons who have contributed significantly to the study.

Authors are responsible for obtaining written permission from everyone acknowledged by name, as readers may infer their endorsement of the data.

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Journals

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2. Corporate Author
   The Committee on Enzymes of the Scandinavian Society of Clinical Chemistry and Clinical Physiology. Recommended method for the determination of gammaglutamyltransferase in blood. Scand J Clin Lab Invest 1976;36 : 119 -125

Books and Other Monographs

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   Osler AG. Complement: mechanisms and functions. Englewood Cliffs: Prentice-Hall, 1976.

4. Corporate Author
   American Medical Association Department of Drugs. AMA drug evaluation (3rd ed.) Littleton: Publishing Sciences Group, 1977.

5. Editor, Compiler, Chairman as Author
   Rhodes AJ, Van Rooyen CE (comps). Textbook of virology: For students and practitioners of medicine and the other health sciences (5th ed). Baltimore: Williams & Wilkins, 1968.

6. Chapter in Book
   Weinstein L, Swartz MN. Pathogenic properties of invading micro-organisms. In: Sodeman WAJr, Sodeman WA (eds). Pathologic physiology: mechanisms of disease. Philadelphia: WB Saunders, 1974: 457 - 72.

7. Agency Publication
   National Care for Health Statistics. Acute conditions: incidence and associated disability, United States, July1968 - June 1969. Rockville, Me: National Centre for Health Statistics, 1972. (Vital and health statistics). Series 10: data from the National Health Survey, No 69). (DHEW Publication No (HSM) 72 - 1036).

Other Articles

8. Newspaper Article
   Shaffer RA. Advances in chemistry are starting to unlock mysteries of the brain: discoveries could help cure alcoholism and insomnia, explain mental illness. However, the messengers work. Wall Street Journal 1977; Aug 12: 1(col 1), 10 (col 1).

9. Magazine Article
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Message

Dr Nor Shahidah Khairullah FRCPath, FAMM
Organising Chairperson
5th APTHC
President, Asia Pacific Travel Health Society
President, Malaysian Society of Travel Medicine

My dear colleagues, I would like to very warmly welcome everyone to Malaysia and the 5th Asia Pacific Travel Health Conference (5th APTHC). It is indeed an honour to host this prestigious conference which is held biennially for the first time in Kuala Lumpur, Malaysia. This conference is organised jointly by the Malaysian Society of Travel Medicine, the Ministry of Health Malaysia and in collaboration with the Asia Pacific Travel Health Society, the Malaysian Liver Foundation and the College of Physicians Malaysia.

With its theme "Emerging Diseases – Impact On Global Travel", this congress brings to you discussions in the latest and most important issues affecting travel health. The 5th APTHC will kick off with a preconference workshop on the logistics of how to set up a travel health clinic following which it will take you through four days of in-depth exploration of contemporary issues in the field.

I would like personally thank you for being here and for being part of the global initiative to make travel safer and less burdened by health concerns. We have with us a local and international faculty of experts to lead discussions on the latest in the field, providing varied perspectives from around the world.

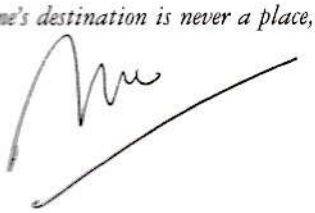
The scientific programme has been designed to cover a well-rounded range of topics. The series of plenary lectures and symposia gives us a comprehensive look at the experience of our peers, while poster and oral presentations provide an insight into the best of current research in the field.

This congress also presents a good opportunity to network among colleagues in the region and around the world. The congress dinner is the perfect chance to meet old friends and make new ones while enjoying sumptuous cuisine. To complement your experience at the 5th APTHC, do take advantage of the various congress tours specially arranged to show you the wonders of Malaysia and to enjoy its rich culture and heritage.

I wish you an enjoyable and enriching experience.

"Travel is more than the seeing of sights; It is a change that goes on, deep and permanent, in the ideas of living." – Miriam Beard

"One's destination is never a place, but a new way of seeing things." – Henry Miller



Dr Nor Shahidah Khairullah FRCPath, FAMM

Message

Dato' Dr Chua Soi Lek
Minister of Health,
Malaysia

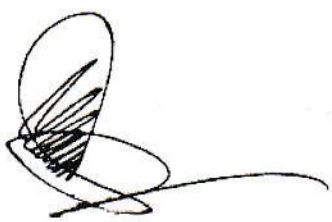
Globalisation has shrunk the world in a big way. We have seen staggering advances in transport and communication, and this, combined with greater wealth, has resulted in a boom in travel within the past century. People are travelling faster, further and more frequently than ever before. However, this increases the risks travellers face, especially the impact that travelling could have on their health.

So many things could happen to a traveller on a trip-jet lag, injuries, emotional distress and infectious diseases. Infectious diseases keep cropping back into the limelight. In these two years alone, three outbreaks in Asia have held millions in a grip of fear.

The deadly SARS outbreak spread with alarming speed and threw many countries into a frenzy to curb its spread and to treat the ill. Lives were tragically lost, and the travel industry suffered worldwide. Airlines and travel agencies struggled to stay afloat while the retail and tourism industries battled declining sales. Fear also shackled people, holding back their desire to travel and dampening their spirits.

Much can be done to improve travel health and protect the well-being of travellers. As travel health practitioners and academics, your role is highly significant. I believe that by being here at the 5th APTHC, you understand and value your part in promoting the health of your patients, in increasing their awareness, and in working together with colleagues in your country and around the world to tackle any crisis that may arise.

I would like to congratulate the Organising Committee for doing a marvellous job in coming up with an excellent programme. I wish you all the best in your vocations and in this congress.



Dato' Dr Chua Soi Lek

Message

Tun Dr Mahathir bin Mohamad

Malaysia is the proud host of the 5th Asia Pacific Travel Health Conference (APTHC) this year and I am very happy to welcome delegates of this momentous event. You have responded to an important call, one that has made itself painfully clear in the advent of the various outbreaks that plagued the region these two years.

Malaysia is an apt venue for this congress. It stands at the crossroads of the region and boasts intense traffic of travellers moving through the Asia Pacific. With so many business travellers, tourists and travellers-in-transit passing across our borders, we certainly feel the impact of travel and its various effects on our population and economy. As such we understand the value of travel health and the need for vigilance and knowledge in that area.

We were lucky. During the recent SARS outbreak, we had the advantage of learning from our neighbours before the disease knocked at our door, hence averting a catastrophe. But we are not complacent. We appreciate the importance of knowledge, co-operation and vigilance if our countries are to protect travellers and prevent the spread of infectious diseases.

Travel health practitioners play an essential part and must constantly seek greater understanding of your field and keep on improving it. The 5th APTHC is a major step in this direction and I am sure you will learn much from each other.

I hope that the warm Malaysian hospitality will make your stay here even more unforgettable. After the proceedings of the congress have enriched your mind, take in the sights of our beautiful, culturally rich country. Enjoy your stay in Malaysia.

Tun Dr Mahathir bin Mohamad

Synopsis for Oral Presentation **Page**

Abstract Code	Theme
PA	Infections and Treatment
PB	Travel Hazards
PC	Diarrhoea and Treatment
PD	Travel Care
PE	Vaccines

Travel Vaccines for General Practitioners What Every General Practitioner Should Know

A de Frey

Past President, South African Society of Travel Medicine, Senior Honorary Lecturer, University of the Witwatersrand

Summary

Travel Medicine has become increasingly important in a constantly shrinking global village. Malaysia is situated in the heart of South East Asia which is one of the fastest developing tourist destinations as well as being an increasingly important contributor to the ever increasing stream of outbound travellers. Malaysian Tourist authorities have been actively promoting domestic travel in the last few years and some of the popular but more remote and rural areas in Malaysia may require appropriate vaccination for even domestic travellers.

Government appointed centres are responsible for the administration of the only WHO / IHR required, compulsory vaccine in the world. Yellow Fever is a legal requirement for a small number of outbound travellers to Yellow Fever affected areas in Africa and South America as well as all inbound travellers originating from a Yellow Fever endemic country.

There are no dedicated travel clinics in Malaysia and this places a responsibility on General Practitioners to ensure that their patients are properly advised, educated and vaccinated when travelling abroad.

Malaysia has a well developed Expanded Programme of Immunisation in line with WHO regulations and recommendations for the region. The EPI vaccines include : BCG, Diphtheria, Pertussis and Tetanus, Polio, Mumps, Measles and Rubella.

Malaysia has a low incidence of Hepatitis A (<50% immunity in adults) and B (Overall prevalence of Hepatitis B infection in children and adolescents is 1.7% and in adults is 3-5%.) Some rural areas in Malaysia and popular but less developed regions outside Malaysia may have a much higher incidence, placing travellers at risk.

A large number of Malaysians travel on the Hajj or Umrah every year - quadrivalent Meningococcal Meningitis vaccine is compulsory for all pilgrims as a measure against large epidemics of meningitis affecting pilgrims and their relatives and friends at home during recent years. The WHO supports this requirement laid down by the Government of the Kingdom of Saudi Arabia.

Rabies occurs in certain areas in Malaysia and the region and travellers need to be informed about the risk of contracting the disease, how to avoid it and what to do in the event of a bite or scratch from a potentially rabid animal. Thailand and India are both popular destinations for outbound travellers and both pose a higher-than-at-home risk for contracting rabies.

Japanese Encephalitis is endemic in parts of Malaysia and both rural workers and tourists who overnight in these areas should be offered vaccination against this disease.

General practitioners are in an excellent position to advise and vaccinate their patients on vaccine preventable disease provided they have the necessary knowledge of travel vaccines and how to conduct an effective risk assessment on their travelling patients.

Pre-travel consultation should include the following elements in order to determine which vaccines would be compulsory, required or recommended for a specific traveller to a specific destination:

A complete medical history including chronic disease and medication, a review of the traveller's itinerary to include the destination, mode of transport and accommodation, duration of stay and likely activities. The practitioner would be well advised to include a brief assessment of the travellers' psychological profile in order to assess his or her risk taking behaviour and mindset regarding the anticipated trip.

The pneumonic DDT-CV (Destination, Disease, Traveller - Cost, Vaccine) may be used as a quick reminder of aspects to consider in establishing appropriate, cost effective vaccination.

Irrespective of the vaccines decided on, Travel Health Education plays an important role in traveller preparation as vaccines on their own would leave many travellers unprotected against non-vaccine preventable disease such as Malaria and Dengue.

All vaccinations administered should be properly documented and records kept for future reference for both clinical and medico-legal reasons.

The delegates participating in the workshop will be enabled to assess the requirements of travellers, obtain a basic knowledge of the geographical spread of vaccine preventable disease and the main indications, contra-indications and potential side-effects of the following vaccine preventable diseases: Yellow Fever, Meningococcal Meningitis, Hepatitis A & B, Tetanus, Diphtheria, Typhoid, Rabies, Japanese Encephalitis, Influenza, Varicella, Polio, Cholera.

Travel Requirements of Special Groups

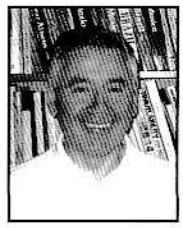
P A Leggat

School of Public Health and Tropical Medicine, James Cook University, Townsville, Australia

Summary

The general approach to the travel requirements of special groups includes (1) the initial risk assessment, determining the risks of the destination, mode of travel and the special conditions of the traveler; (2) vaccinate when possible and indicated; (3) provide the traveller with appropriate empirical self-treatment, including a travellers' medical kit and, where appropriate, the name of a physician or clinic at the destination, including a detailed doctor's letter; (4) consider chemoprophylaxis when possible and indicated; (5) consider any concerns regarding underlying conditions and possible drug interactions; (6) consult experts in travel medicine or specialty areas as necessary; (7) educate the traveller, understanding that this aspect may need considerable reinforcement, including written information; and (8) indicate to the traveller that vaccination, self-treatment and chemoprophylaxis are not 100% protective and they should seek medical advice if they become sick.

Vaccinating Children for Overseas Travel



K Neumann

New York Presbyterian Hospital- Cornell Medical Center, New York

Summary

Administering vaccines to pediatric travelers in a rational manner requires familiarity with many factors:

- children's age, vaccination history, travel history, country of birth, and country where they were raised
- children's present health status, past illnesses, and allergies
- prevalence of vaccine-preventable diseases in the specific area to be visited and vaccination coverage of local children
- types of accommodations and restaurants to be frequented – eating in first class restaurants or buying food from street vendors
- planned association with local people – staying at five-star restaurants
- or visiting friends and relatives, for example
- effectiveness of the indicated vaccines at the age of the pediatric traveler
- lower age limits for each vaccine and the reasons for the limits
- size of needle/size of child ratio
- correct anatomical site for injecting infants and small children for maximum safety and optimum immunogenic response
- accelerating routine vaccine recommendations and scheduling later "make-up" doses during home visits back home
- giving or not giving vaccines when children are ill
- oral polio vaccine versus killed polio vaccine
- influenza and tuberculosis can be travel-related diseases
- side reactions that are peculiar to young children

Emerging Diseases - Impact on Global Travel

H D Nothdurft

Department of Infectious Diseases and Tropical Medicine, University of Munich, Germany

Summary

Increasingly we realize that we are threatened by emerging or re-emerging infections. SARS and avian influenza are the most recent example, another human influenza pandemic would be one of the worst case scenarios.

SARS has tought us many lessons. Similarly as when the HIV pandemic surfaced, it is possible to take preventive measures even before knowing the pathogen. These measures were very effective as the coronavirus usually is not very easily transmitted. Intercontinental collaboration is paramount to stop such an epidemic.

SARS by far is not the only emerging infection in which travelers play an important role. Dengue and HIV have spread worldwide, while in contrast filovirus infections, Lassa fever draw great media attention, but are less threatening. Traveling animals resulted in an outbreak of monkeypox recently, the role of travelers in the rapid spread of the West Nile virus epidemic remains to be determined.'Old' infections should not be neglected. In Europe we have observed repeated outbreaks of hepatitis A mainly after non-immune residents returned to their native country to visit friends and relatives. Other examples are hepatitis B, meningococcal disease, tuberculosis, and malaria.

Although we have experienced a series of hoaxes, fortunately there has been no indication that biological warfare agents have been acquired and spread by travelers.

Preventive options can be discussed on the example of SARS. They must base on scientific facts, not on emotions. We have learned that we urgently need to adapt the legal basis to be able to implement effective measures – the International Health Regulations need further amendments and also national legislation needs to be revised.

Public Health Challenges of Global Events in the Next Decade

H E Shahul

CDC, Atlanta, USA

Summary

The need to address health as a development issue in its own right and as a contributor to several factors became apparent in recent years. I reviewed literature, policy documents, and statistics on health issues and other potentially health-related issues including from the World Bank, United Nations Organizations, Global Burden of Disease, and Vital Statistics, Survey, and Surveillance reports from selected countries. I summarized the leading problems in general and those are specific to health facing the world in the coming decades and compared them with global, multilateral, and country specific declarations and initiatives at addressing these issues. Finally, I examined the relevance of these developments to travel medicine. The top ten issues facing the world in the decades to come (shortages in energy, water, food, environmental degradation, poverty, armed conflict, emerging diseases, lack of education and democracy, and population growth) are directly linked to the top ten health issues in the next decades (those arising from malnutrition, tobacco, alcohol, poor sanitation, unsafe sex, occupation, hypertension, physical inactivity, illicit drugs, and air pollution). Both of these lists encompass several domains of travel health. Ambitious goals have been set to address these issues. The 2000 UN Millennium Declaration 2000 which captured these health-specific and health-related issues in the 8 millennium development goals, the commitment from 2002 Monterry International Conference on Financing for Development on addressing funding gaps, inclusion of polio and HIV/AIDS as key issues during the 2004 G8 Sea Island Summit, and Global Fund to Fight AIDS, Tuberculosis, and Malaria are a reflection of growing recognition of the role of health in emerging global issues. While awaiting the fruits of these initiatives, the ensuing conceptual base, statistical evidence, and debates help formulate and enact action at country level, professional level, and at individual level.

Chikungunya Infection: A Serious Threat to Travellers

R H H Nelwan

Chief Division of Tropical and Infectious Diseases, Faculty of Medicine University to Indonesia, Jakarta

Summary

Chikungunya belonging to the family of Togaviridae is transmitted through the arthropod vector including Aedes aegypty the same mosquito responsible for spreading the various grades of dengue infection. India and Srilanka and most of the South East Asian Countries have reported on Chikungunya outbreaks. However, it is more wide- spread in the African Continents where a forest sylvatic cycle is maintained by Ae africanus involving local monkeys. The center for Hay pilgrimage in Saudi Arabia also reports on chikungunya infections.

After a shot incubation period of 2-4 days there is an abrupt onset of joint pains and abiphasic type of fever followed by a maculopapular itchy rash. Complete recovery is common but arthralgia may persist for a few months.

In a well documented out break where 803 patients were involved in a remote district of the North Sulawesi Province most of the patients complained of fever, arthralgia and skin rash where often more than one family member of the household was involved. A limited number bleeding manifestation had to be differentiated from dengue.

A traveler may be struck suddenly by difficulty in walking due to severe arthralgia. No vaccine is presently available although some progress is reported in this field. Prevention should be directed to mosquito control and self protection. Diagnosis could be established by ELISA, PCR or virus isolation. Serological surveys could be carried out either by neutralizing antibody test or haemagglutination inhibition. Treatment is purely symptomatic. Prognosis in excellent.

Vaccines - Recommendation for Travellers

R Steffen

University of Zurich

Summary

To be able to decide on the need to recommend vaccines for travellers, one must first consider epidemiological and legal data. This allows us to group travel vaccines in required, routine and recommended ones and to set correct priorities. A caveat first: on most vaccine preventable diseases no recent morbidity and mortality data exist, there are indications the incidence rates identified in 1970's and 1980's may be decreasing. This may be due to immunisation or to improved hygienic conditions at the destination — the latter is in contradiction to observations related to travellers' diarrhoea and to typhoid fever.

Required

Yellow fever occurs only in tropical Africa and northern South America. Usually a few hundred cases are reported to WHO annually, but it is estimated that more than 200,000 cases occur. Yellow fever has never occurred in Asia although its vectors, Aedes and Haemagogus have been observed there. Yellow fever is extremely rare in travellers, but several cases in unvaccinated visitors have been reported in the last ten years; most of them died. Cholera and plague would be the other two diseases subject to the currently valid International Health Regulations, but since immunisation is almost nowhere required, this will be discussed below. Until 2003 meningococcal disease has frequently been observed during or after the haj or umrah pilgrimage to Mecca (200 per 100,000, no cases in 2004), but it is rare even in travellers staying in countries where the infection is highly endemic. The case fatality rate among travellers slightly exceeds 20%.

Routine

To our knowledge no cases of tetanus have been recently reported in travellers, but such reports may be hidden in national surveillance data. As demonstrated by a large epidemic in the former Soviet Union 1990 to 1997, diphtheria may flare up under specific circumstances. This epidemic resulted in dozens of importations to Western Europe and North America — several were fatal. Poliomyelitis, although almost eradicated from most parts of the world may rarely still be associated with virus imported by asymptomatic persons, as demonstrated in Bulgaria and China recently. In travellers to South Asia and to tropical Africa poliomyelitis has remains a risk. Hardly any data exist on pertussis, haemophilus influenzae B, mumps and rubella in travellers. In view of suboptimal compliance with measles vaccination, European, African and Asian travellers are responsible for outbreaks on the American continent, where vaccine uptake is far superior. By experience, hepatitis B — now a routine immunisation in most industrialised countries — is mainly a problem for expatriates living close to the local population and for travellers braking the most basic hygienic rules; the monthly incidence is 25/100,000 for symptomatic infections; 80-420/100,000 for all infections. While minute quantities of the

virus are sufficient for transmission and the exact mode of transmission may remain undetected in many individuals, clear risk factors, such as casual sex, nosocomial transmission, etc. have often been suspected. Behavioural surveys have shown that up to 15% of travellers voluntarily (dental hygienist, for acupuncture, cosmetic surgery, tattoos, ear piercing, scarification) or involuntarily expose themselves to blood and body fluids while in high risk countries.

Recommended

The most frequent vaccine preventable infection in non-immune travellers to developing countries is hepatitis A with an average incidence rate of 300 per 100,000 per month; in high risk backpackers or foreign-aid-volunteers this rate is 2,000 per 100,000. In various studies reviewed it has been shown that also luxury tourists staying at multistar resorts may be at risk of infection. Travellers to these destinations are often not complying with hepatitis A vaccination recommendations, particularly those visiting friends and relatives (VFRs) are negligent. Typhoid fever is diagnosed at an incidence rate of 30 per 100,000 per month in travellers to South Asia. Elsewhere this rate is tenfold lower or less. Also this infection is often imported by VFRs. The case fatality rate among travellers was <0.5%. So far no data have been published on the risk of influenza in this population, but various outbreaks on cruise ships or after a flight have been described.

The risk of rabies is particularly high in Asia where 90% of all human rabies deaths are reported. Many among the monthly 0.2-0.4% who experience an animal bite are at risk of rabies. Rabies is a risk particularly in those who are in close contact with natives over a prolonged time, e.g. missionaries, those en route with bikes, small children and in those working with animals or who explore caves.

Basing on post-travel skin tests, the incidence rate of M. tuberculosis infections is 3000 per 100,000 person-months of travel, and 60 per 100,000 had active tuberculosis. The prevalence of transmissible tuberculosis among air travellers is estimated to be 5 to 100 per 100,000 passengers, depending on the route of the plane. For several potentially vaccine preventable diseases the risk of infection is clearly less than 1 per 100,000: The risk of cholera is approximately 0.2/100,000, although asymptomatic and oligosymptomatic infections may be more frequent, as demonstrated in Japanese travellers. The case fatality rate is less than 2% among travellers. Although a few dozen cases of Japanese encephalitis have been diagnosed in civilian travellers within the last 25 years, the attack rate in civilians is less than 1 per million in view of the number of travellers. Exceptionally for instance a short-term tourist in Bali may be affected. Few anecdotal reports have documented tick borne encephalitis in international travellers. Only two international travellers were diagnosed with plague since 1966.

Conclusions

From the epidemiological basis described above, it is clear that future travellers should receive

- All required immunisations: if health professionals do not comply with this rule serious problems may arise, as a traveller may be refused entry to the country.
- All routine immunisations, basing on the varying national programs.
- The appropriate recommended immunisations. The art of travel medicine is not to give all available vaccines — this would result in unnecessary costs and adverse events — but to make the correct arbitrary decision how far on a priority list he should recommend protection. It is certainly wrong to protect a traveller against rare and less serious infections, while leaving him or her at risk of more frequent and more serious ones. There is almost worldwide consensus that travellers to developing countries should be immune against hepatitis A and hepatitis B. Other vaccines are usually reserved for risk groups, the crucial pre-travel question is just to detemine who belongs to those.

One should, however, not only consider only environmental and travel characteristics, also host factors may play a role. It is useless to immunise persons against hepatitis A who already have acquired lifelong immunity by infection, as is often the case in lower socio-economic strata in developing countries or after the history of jaundice, or in persons who have been born before World War II anywhere in the world.

Global Partnerships on Emerging Diseases- An Overview

S Dowell

International Emerging Infections Program Thailand MOPH- US CDC Colaboration

Summary

Despite remarkable advances in medicine and public health prevention measures in the 20th century, infectious diseases remain among the leading causes of death and disability worldwide. In addition to endemic infections, new and old infectious diseases periodically emerge, magnifying the global burden and sometime resulting in extraordinary social and economic consequences. Worldwide, about 15 million (>25%) of 57 million annual deaths are estimated to be the direct result of infectious diseases while many more succumb to complications of chronic infections. A disproportionate burden falls on developing countries whose resources are often insufficient to address the magnitude of the problem. Recently, intentionally introduced biological threats have also become a concern.

The prevention and control of infectious diseases are fundamental to individual, national and global health and security. To improve the surveillance and control of emerging infectious diseases, ministries of health and many international organizations have begun to focus considerable resources on the issue. Global partnerships may be the best approach to this complex problem. Challenges include developing scientific expertise and laboratory infrastructure, improving the speed of communications, securing adequate and sustainable funding, coordinating outbreak responses, and avoiding duplication of efforts to best utilize limited resources.

The First US CDC International Emerging Infections Program Thailand

M Simmerman

International Emerging Infections Program Thailand MOPH- US CDC Colaboration

Summary

The International Emerging Infections Program (IEIP) in Thailand was established in October 2001. The IEIP is a collaboration between the Thai Ministry of Public Health (MOPH) and the US Centers for Disease Control. The mission of the program is to strengthen Thai capacity to identify and control emerging infections of regional and global significance. IEIP-Thailand focuses on four main pillars of activity – surveillance, outbreak support, training and research.

Surveillance

Population-based active surveillance with laboratory confirmation of cases is a core objective of the IEIP. Such surveillance in centers of excellence around the globe will ultimately produce data to accurately measure and monitor the burden of disease from infectious agents, and serve as a national and international resource to guide future public health decisions.

Outbreak Response

The IEIP has served in a variety of roles for domestic and regional outbreak responses, the most critical of which have been for SARS and avian influenza (AI). The IEIP has also provided laboratory services for outbreaks of calicivirus, and enterovirus EV71, obtained specimens to identify a novel coronavirus (SARS), and sent outbreak teams to Taiwan, Laos, China, Hong Kong, Singapore.

Training

The IEIP provides both epidemiology and laboratory training for Thai, US-based, and staff from other countries in the region. Regional training organized by IEIP includes workshops on the laboratory identification and epidemiology of Anthrax (2002) and Avian influenza A (H5N1) in 2004.

Research Activities

The IEIP conducts ongoing studies of the causes of pneumonia, febrile illness and encephalitis in Thailand.

Global Expertise Applied Locally-Involving Rural Communities for SARS Control

J T Zhuo

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Summary

Guangxi (population 48 million) province's proximity to Guangdong and Vietnam, while advantageous to economic growth, exposed the province to outbreaks and prompted the evolution of a swift response to address and contain such threats. Conceived in 2001, the "Three-Network Emergency Response System-TNERS" which consists of 'Administrative Responsibility Network System', 'Public Health Surveillance Network System', and 'Emergency Rescue Network System' was designed to deal with the public health emergencies in major cities. Drawing from a series of consultations with US-CDC and the WHO to address outbreaks, and modeled as a mix of several international initiatives and country efforts, the system is not limited to emerging diseases but all emergencies. Monitored jointly by the WHO-US-CDC team and the GCDC, the system was first put to test in its full capacity when the first SARS case was identified by the system on January 19, 2003. The TNERS system complements a public health system (Public Health Surveillance Network) to work in concert with two proactive management and marketing activities -- empowering management responsibilities among government workers ('Administrative Responsibility Network System'), and promoting community engagement in emergency preparedness (Emergency Rescue Network). The 'Administrative Responsibility Network System' identifies and entrusts government officers in each jurisdiction to report emerging events to appropriate offices (health or other fields) on a rotating basis. Public health surveillance personnel who receive such reports were trained to triage such reports and liaise with local communities as and when needed as well as informing the provincial leadership. The 'Emergency Rescue Network' includes community members who have been identified to lead or facilitate rescue or quarantine efforts upon receiving notification from respective personnel (for instance public health personnel in case of a medical emergency). Such intertwined mechanism helped alleviate administrative obstacles and delays in triaging information, and administering appropriate control (SARS) or relief (floods) measures. Access to communication played an important role in faster information sharing and resource mobilization. Governmental interest and endorsement at the highest level helped establish the 'Administrative Responsibility Network System'. While such independent agencies or procedures to address emergencies exist in many countries, this is the first report of a collaborative approach of conceptually complex and organizationally cumbersome networks.

The team came from U.S. CDC and WHO included Dr. Lisa Lee, WHO representative in China, Dr. Katrin Leitmeyer, Dr. Thomas Gerein, Dr. Peta-Anne Zimmermen and Dr. Shigematsu Mika visited Guangxi on April and May 2003, deeply impressed on the management of the noticeable disease surveillance system including SARS after checking both the rural area hospital as well as hospital in Nanning without any suspicious for SARS containment achievement in Guangxi. They specially appraised the requirement of the three network system and the focusing training and management in the grassroot. Good working in the community is the tight basis form the public health emergency information delivery and prompt response. The Guangxi quickly responding and containing infectious emergency in the community with combination of the Government administrative emphasizing and the technical consultant and support is a good experience in the undeveloped area in the world, especially in the Asia.

Dengue Fever – A Continuous Threat

S K Lam

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Summary

Dengue infection is the most common mosquito-borne disease in Southeast Asia and as long as we have these vector mosquitoes, the disease will continue to be a threat in the tourism industry. The disease has spread far and wide in tropical Asia, the Pacific Islands, the Caribbean Islands, Central and South America, and Africa. It has been estimated that nearly half the world population live in dengue endemic countries and it is therefore not surprising that it figures prominently as one of the most important public health concerns in the region.

Tourism is big business in Southeast Asia, including Malaysia where it is expected to contribute significantly to the national economy. It has been estimated that each year as many as 50 million Americans travel abroad, with about half of them being attracted to developing countries where dengue is endemic. Although diarrhoeal and respiratory infections are the most common illnesses among tourists, diseases transmitted by insects such as mosquitoes are becoming more common.

About Dengue Fever

In its mildest form, dengue fever (DF) can be confused with influenza as well as other microbial infections (scrub typhus, typhoid, leptospirosis, etc). A person bitten by an infected mosquito may take 4 to 6 days to develop symptoms, with a range of 3 to 14 days. Fortunately there is no direct human-to-human transmission. DF starts off with a sudden onset of high fever, severe headache, pain behind the eyes, and muscle and joint pain. Nausea, vomiting and loss of appetite are common. A rash usually appears 3 to 4 days after the onset of fever, spreading from the trunk to the arms, legs and face. The whole episode may last up to 10 days and the recovery phase can take as long as 2 to 4 weeks [1].

Some cases of dengue can progress to a more severe form known as dengue haemorrhagic fever (DHF) where the blood vessels become leaky and cause bleeding from the nose, mouth and gums. There may be severe internal bleeding leading to the collapse of blood vessels causing shock. Five out of 100 DHF cases succumb to this severe infection affecting mainly young children and it is believed that DHF is the result of a subsequent attack by a different dengue stain.

Unusual clinical manifestations due to dengue include vertical transmission from mother to foetus [2] and dengue encephalitis [3,4]. It has been recommended that tourists manifesting neurological symptoms after a trip to dengue endemic countries should also be tested for dengue [5].

Who is at risk to dengue?

There are four dengue virus serotypes and each can give rise to dengue fever as well as its severe form. In endemic countries including Malaysia, all four serotypes co-circulate in any one year [6]. Unfortunately, there is little or no cross protection after being infected with one strain so that theoretically we can suffer from four episodes of dengue infections. Not all mosquitoes transmit dengue virus, only those that belong to the ***Aedes*** family, especially ***Aedes aegypti*** and ***Aedes albopictus***. ***Aedes aegypti***, the principal vector, is very selective in its breeding sites, preferring clean water (e.g rain water) in man-made containers. As such, the majority of dengue cases are reported in urban rather than rural settings.

Treatment

Like most diseases caused by viruses, there is no specific treatment for dengue. The best we can do is to provide symptomatic relief for the classical disease with adequate bed rest and consuming plenty of fluids. For the high fever, aspirin-based anti-pyretics are not recommended since this can lead to further bleeding.

Severe bleeding is treated by fluid replacement to counter the onset of shock. In more severe cases, transfusion of blood or blood products may be necessary. Close monitoring of the patient's clinical condition, with frequent blood tests, is part of the management of dengue [7].

Diagnosis

It is not easy to diagnose dengue clinically because it can be confused with influenza and other viral and bacterial infections. This is especially so among returning tourists after holidaying in an endemic country. Imported dengue is not uncommon anymore and it is important to provide the doctor with details of travel history. To confirm whether a patient has dengue or not, a simple blood test is now available [8]. This test takes a matter of minutes to perform but its interpretation should be taken with caution based on the clinical diagnosis. Other more elaborate tests are available to confirm DF/DHF if necessary.

Prevention and Control

Since dengue transmission is through the bites of infected mosquito, it is obvious that control measures must be directed at the vector mosquitoes. Government campaigns are mounted to encourage house owners and individuals to do their part to reduce mosquito- breeding sites in and around households. Such measures have varying rates of success and no country has successfully eradicated Aedes mosquitoes. Tourists are urged to use mosquito repellents on skin and clothing to avoid mosquito bites. Sleeping under mosquito netting and using mosquito coils are not popular unless one is camping or traveling rough in developing countries. Staying in air-conditioned or screened areas will reduce the risk but not a practical solution. It must be remembered that the dengue vectors bite mainly during daylight hours (early mornings and late afternoons) when tourists are more likely to be outdoor than indoor. Thus the wearing of long-sleeved shirts and long pants outdoors is recommended to prevent being bitten by mosquitoes.

Although vaccine development has been on-going since the 1960s, there has not been any vaccine commercially available to date. Several promising candidate vaccines are undergoing field-testing and it is hoped that it will not be long before they become available [9,10].

Conclusion

Despite the fear of dengue infection in the tourism industry, the risk to travelers is quite low and should not affect the industry. By taking the appropriate precautions, this risk is even lower and the number of reported dengue cases among tourists returning to their respective countries confirms this fact. In USA, it is estimated that only 100 imported cases of DF are reported each year despite the large number of travelers to tropical countries. Nevertheless, it is important for endemic countries to reduce this risk further by conducting year-round campaigns and issue accurate advisory to the travel industry. It would be ironical if countries which are actively promoting health tourism end up with dengue on their return home!

References

1. Dengue haemorrhagic fever: Diagnosis, treatment, prevention and control. 2nd edition. WHO Geneva (1997).
2. J.K. Chye, C.T. Lim et al. Vertical transmission of dengue. Clin. Infect. 1997 ; 25: 1374-77.
3. L.C.S. Lum, S.K. Lam et al Dengue encephalitis – A true entity? Am. J. Trop. Med. Hyg. 1996 ; 54: 256-59.
4. T. Solomon, Nguyen Minh Dung et al Neurological manifestations of dengue infection Lancet 2000 ; 344: 1053-59.
5. E.J. Garcia-Rivera and J.G. Rigau-Perez Encephalitis and dengue Lancet 2002 ; 360: 261-63.
6. S.K. Lam. Dengue haemorrhagic fever Rev. Med. Microbiol. 1995 ; 6: 39-48.
7. S. Nimmannitya. Dengue haemorrhagic fever: Diagnosis and management. Dengue and dengue haemorrhagic fever, CAB International, Chapter 7 (1997).
8. S.K. Lam and P.L. Devine. Evaluation of capture ELISA and rapid immunochromatographic test for the determination of IgM and IgG antibodies produced during dengue infections. Clin. Diag. Virol. 1998 ; 10: 75-81.
9. N. Bhamarapravati and Y. Sutee. Live attenuated tetravalent dengue vaccine. Vaccine 2000 ; 18: 44-47.
10. S.B. Halstead and J. Deen. The future of dengue vaccines. Lancet 2002 ; 360: 1243-45.

Sea, Air and Land Travel

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Summary

The management of all medical emergencies during travel has some common core elements, as well as specific considerations based on the whether the emergency occurs at sea, in the air or on land. The common elements most often come down to pre-trip planning and preparation, especially risk management planning for pre-existing medical conditions and an appreciation of likely circumstances leading to injury. This paper examines the management of medical emergencies first through application of internationally accepted risk management strategies for tourism (Wilks & Moore, 2004); and second through profiling actual sea, air and land emergencies managed by a medical assistance company operating in the Asia Pacific region. Particular attention is given to formal, structured decision-making policies and procedures as a means of providing quality medical care, and avoiding law suits. The importance of relevant support resources, such as embassies and consular services, are discussed.

Wilks J, Moore S. Risk Management for Tourism in the Asia Pacific Region. Southport, Australia: Cooperative Research Centre for Sustainable Tourism; 2004.

Management of Medical Emergencies During Travel - Medicolegal Perspectives

R Farrow

Senior Deputy Group Medical Director-Assistance

Summary

Exposure to different environments and cultures are two of the major attractions of overseas travel.

However when a medical emergency occurs involving a traveler the environmental and cultural aspects, that earlier seemed so attractive and exciting, can suddenly become disconcerting.

When we are unwell in our home country we are familiar with the medical relationships between patient and doctor and the situations in clinics and hospitals. We feel comfortable as we are at home and have family support. When we become unwell when traveling overseas a different medical environment can become uncomfortable and threatening. There are language issues, concern over the safety of blood products and invasive procedures and no familiar family support. Suddenly the attractions of overseas travel change.

All over the world societies are becoming more aware of the legal options for redress. In an increasingly litigious environment the international medical community needs to be aware of the medico-legal issues that need to be recognized, acknowledged and addressed when treating foreign patients.

This presentation looks at the international medico-legal environment, patients' rights, informed consent, the release of medical information and how these issues may affect the management of medical emergencies involving travelers.

Management of Medical Emergencies During Travel - Travel Health Insurance

R Farrow

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Summary

The insurance industry has been revolutionized over the past few years. Whereas previously policy holders were required to pay and file a claim for medical expenses, market forces have driven insurance companies to offer pre-certification / pre-approval and a guarantee of payment of claims.

As a consequence policy holders are no longer happy to pay for expenses themselves if an insurance company has sold them a policy that offers to do so.

As a consequence of this complete turn around in the handling of travel insurance claims the insurance companies are indeed selling more travel policies but their claims departments are also incurring more claims. Since the profit margins on travel insurance are low insurance companies watch medical claims carefully.

In a medical emergency one of the first non medical issues that needs to be resolved by the service provider is who will pay for urgent / emergency care and any medically necessary transport? The process of seeking pre-approval / authorization for urgent / emergent care from an overseas insurance company can be challenging in an international setting.

This presentation looks at the range of coverage offered by the international travel insurance market and how the services currently available are accessed and operate. This is done both from the point of view of the travel insurance policy holder and the insurance company claims department.

How Prone are you to "Economy Class Syndrome"?

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Summary

Concern with occurrences of DVT after long haul flights heighten following the death of Ms. Emma C, a bride to be, who collapsed minutes after getting off a 22 hour flight from Australia at London's Heathrow airport in September 2000. Post mortem done revealed the cause of death to be from pulmonary embolism arising from a deep vein thrombosis. What made Ms Emma C's case noteworthy was that she was young, in good health and about to be married.

Following the media frenzy in this case, there was an increase interest in the subject of passenger health issues with the subject being thoroughly investigated by the Science and Technology Committee of Britain's House of Lord's. The committee also recommended an end to the preference of DVT as "economy class syndrome". Instead, the usage of the term "travelers thrombosis" was deemed more appropriate on the basis that travelers seated in business and first class have also been reported to have had DVT in some of the published reports, as were travelers using other modes of travel.

In this report, some airlines were also criticized for not providing sufficient information to customers. Since then, airlines and doctors with interest in travel medicine have been advising passengers about lower leg exercises, adequate hydration, avoidance of caffeinated drinks while traveling, wearing of loose clothing, preference for aisle seats, regular mobilization if practical, minimizing or abstaining from alcohol, avoidance of sedatives and the usage of graduated compression stockings when traveling.

In discussing DVT, it is prudent to keep in mind Virchow's postulate. Virchow in the mid 1800's, postulated three major causes of thrombosis: changes in the vessel wall, changes in the blood flow and changes in the blood composition. These group of causes do not have the same role in arterial and venous thrombosis. In arterial thrombosis, vessel wall changes (atherosclerosis) and associated risk factors (hyperlipidemia, hypertension, diabetes mellitus, smoking) dominate. Due to high blood pressure and blood flow in arteries, stasis and immobilization do not affect risk, and hypercoagulability of the blood has a relatively minor role. On the other hand, stasis and immobilization are important risk factors, as are prothrombotic abnormalities in the causation of venous thromboembolic phenomenon. Atherogenic factors such as hypertension, hyperlipidemia etc. do not increase the risk of venous thrombosis.

Although there is now an increasing suspicion amongst the traveling public and media of an association between the occurrence of venous thromboembolism and air travel, the true frequency during long haul travel is unknown due to paucity of evidence making it difficult to measure the actual incidence.

Immobility when seated was first recognized as a risk factor for the development of DVT in air raid shelters during World War II. Homans in 1954, reported five case of DVT after prolong seating and was the first to report two cases of VTE (venous thromboembolism) associated with air travel. Since than there have been approximately 250 published cases of VTE associated with air travel. The background incidence of DVT in the general population is approximately 1-2 per 1000 people per year and this increases with age. In addition, 20% of the total population may have some degree of increased clotting tendency and this group are at risk of coincidentally developing DVT when traveling.

Though definitive data is lacking, it has been estimated that the added contribution of any form of long haul travel to VTE, is an approximate average of 0.2 per 1000 people per year. This risk estimate is likely to be higher for people with risk factors and lower for those without.

With regards to the time of presentations; from a series of 33 cases reported from Honolulu, it was noted that symptoms of VTE may develop within 24 hours after take-off or as late as 15 days with a median time of symptom onset of four days.

The type of venous thromboembolism reported to be associated with air travel include deep vein thrombosis in the leg, subclavian vein thrombosis, cerebral vein thrombosis and pulmonary embolism. Except for pulmonary embolism and DVT , the relationship between air travel and the rest is weak and thus most studies have focus on DVT and pulmonary embolism.

Review of literature has shown that the incidence of severe pulmonary embolism occurring shortly after travel has been linked to the distance traveled : 0.01 per million for flights less than 5000 km, 1.5 per million for flights less than 5000 – 10, 000 km, and 4.8 per million for flights over 10,000 km.

Several studies have also highlighted predisposing risk factors in the possible association for travel related VTE. Other than length of flight, various passenger related and cabin related factors have been implicated as predisposing risk factors. Cabin-related factors include immobilization, coach position, low air pressure, relative hypoxia, low humidity and dehydration. Patient related factors identified include age, obesity, chronic heart disease, hormone therapy – both OCP's and HRT, malignancy, previous DVT, recent surgery or injury, smoking, age > 40 years, pregnancy, puerperium, antiphospholipid syndrome, essential thrombocythemia, polycythemia vera, hyperhomocysteinemia, hereditary hypercoagulability states like antithrombin deficiency, protein C deficiency, protein S deficiency, Factor V Leiden, Prothrombin 20210A, and dysfibrinogenemia.

In conclusion, it is apparent that there are reasonable physiopathological arguments to suggest that an airline cabin environment may, though small, increase the risk of VTE - particularly in the passenger with additional risk factors as elaborated above. There are however no large scale incidence studies available to permit an estimation of the actual risk to the traveling public. We are thus eagerly awaiting the results of the WRIGHT (World Health Organisation Research into Global Hazards of Travel) project expected out in 2006 to answer many of these questions.

Current Studies on Economic Class Syndrome

W Pasini

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Summary

Circulatory stasis is a predisposing factor for the development of venous thrombosis (blood clots). Most venous thrombi do not cause any symptoms and are reabsorbed without any consequences. Occasionally, if a thrombus detaches from the lining of the vein and travels in the bloodstream to the lungs, deep-vein thrombosis (DVT) may cause pulmonary embolism with chest pain, shortness of breath, and even sudden death. This may occur many hours after the formation of the thrombus. Fatal pulmonary embolism may occur in travellers without evidence of DVT .

Pre-existing risk factors for thromboembolism include:

- previous history of venous thrombosis or pulmonary embolism
- age over 40 years (risk increases with age)
- use of estrogen therapy (oral contraceptives or hormone replacement therapy)
- pregnancy
- recent surgery or trauma, particularly abdominal or lower limb surgery
- cancer
- genetic blood-clotting abnormalities
- varicose veins
- obesity

It is advisable for people with one or more of these risk factors to seek medical advice before travelling.

The mechanisms of thrombosis developing in long haul travelers have been investigated. The triggering factor has been attributed to low humidity levels in cabin conducting to hemoconcentration, although this has not been proved the seat position producing venous compression at the knee level and the immobility causing venous stasis, is logically a predisposing factor. Also hypoxia and low atmospheric pressure were proposed. Studies performed in cabins with low atmospheric pressure and low oxygen levels showed a procoagulant activation, similar to that found in air travel patients, but not in ground travelers.

The term, Economy Class Syndrome (ECS) was coined in the late 1980's when longhaul flights and cramped conditions were commonplace. However, recent research, The Best Study (2003), has demonstrated that DVT affects passengers in all classes, including those in flying beds and in business class, where the condition occurred as frequently. Another major study, LONFLIT 1-6 (2001-2003), by Professor Belcaro has shown that even shorthaul flights can cause DVT. Passengers between the ages of 25 and 65 travelled between London and Italy in cramped conditions.

The recent evidence substantiates the fact that several contributory factors which cause a DVT to develop are all found in the cabin environment.

The first deaths with a direct link to flights were reported at Heathrow during 1979 to 1982 and of 104 cases, 18% died from pulmonary embolism, following DVT. In a recent survey of the Aviation Health Institute Database of 544 DVT incidents, it was found that 10% of the deaths occurred in Business/First compared to 90% in Economy.

The results of several studies on air related DVT which involved several thousand subjects has shown that there is an incidence of 1% for passengers with low risk and an incidence of some 5% for passengers with medium to high risk. What it represents is that 1 in 100 with no pre-existing conditions are at risk from DVT on all flights.

The negative effects of prolonged immobility can be reduced by doing simple exercises at frequent intervals during the flight. Many airlines provide helpful advice on in-flight exercises that stimulate the circulation, reduce discomfort, fatigue and stiffness, and lower the risk of developing venous thrombosis. Wearing properly fitted graduated-compression stockings specially designed for air travel may be helpful. Hand luggage should not be placed where it may restrict movement of the legs and feet. Clothing should be loose and comfortable.

The benefits of aspirin in DVT and pulmonary embolism have been shown in trials of surgical patients, where there is an increased risk of venous thrombosis. Statistically, these results can be extrapolated to other high risk situations, such as long haul airline passengers. The aspirin overview published by the Antiplatelets Trialists' Collaboration (BMJ 1994) showed that, in over 8000 surgical patients, a few weeks of aspirin reduced the incidence of pulmonary embolism by over one half, and DVT by two fifths.

An instruction to the passengers in long haul flights in exercises and the existence of demonstrated risk factors is a first approach to prevention. In addition, treating the high-risk group patients with heparin, the patients with moderate risk factors with both leg compression and aspirin, and aspirin to the remainder (taken before, during and one or two weeks after fly), could produce a similar effect to that found in patients subjected to orthopedic surgery, in whom a significant reduction of episodes of thrombosis is found thus decreasing this serious problem, which is inherent to fly travel.

Tuberculosis and Travel

A W Smith

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Summary

International travel and migration increase the spread of Tuberculosis (TB). TB – a disease still highly endemic in large parts of the world – also has the potential for introduction into and further transmission within countries where it has become rare. Although the impact of human migration on TB in populations can be estimated, the risk of TB for individual travelers can be difficult to quantify precisely. This is because of the long interval between acquisition of infection and reaction of the active disease and the substantial differences in the pre-existing occurrence of TB in different populations. Another limitation when estimating risk is the poor specificity of the tuberculin skin test. Alternative test methods such as the QuantiFERON TB Assay will be presented.

The incidence of latent TB infection among Dutch travelers to TB endemic countries in a well-designed prospective study was 1.9% for travel more than 3 months. During the annual Haj pilgrimage to Saudi Arabia, more than 2 million pilgrims from all over the world, often from developing countries endemic for TB, congregate for an extended period of time. Data show that the most common cause of hospitalized pilgrims with pneumonia is TB, indicating substantial transmission of M. tuberculosis during this pilgrimage. Estimates on the incidence of latent TB infection during the Haj, using the QuantiFERON TB assay, will be presented.

Transmission of TB in aircraft has been documented. This is most likely due to direct person-to-person transmission as the high-efficiency particle absorption (HEPA) filters in aircraft are reported to be effective in retaining pathogens; thus, re-circulated air should be no risk to passengers. Guidelines on the prevention of prevention of M. tuberculosis on airplanes will be presented.

Avian Flu – A Threat to Human Health and Implications for Tourism/Travel

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Summary

Avian influenza A virus (H5N1) caused outbreaks in poultry in Hong Kong in 1997. More recently (2003/4), H5N1 avian flu has swept across Asia, affecting 9 countries and causing human disease and death in two countries. Human disease with H5N1 is far more severe than "common" human influenza due to H3N2 or H1N1 viruses. The disease often, but not always, develops into a rapidly progressing viral pneumonia leading to ARDS. Lymphopenia and deranged liver function tests are seen. Recognition and differentiation from other causes of severe pneumonia on purely clinical grounds is not possible. Thus active virological investigation of patients with severe pneumonia, especially (but not exclusively) those with history of contact with poultry is required. Oseltamivir is expected to be effective in prophylaxis and if used early, useful in treatment. Recent H5N1 viruses may be resistant to amantadine. Up to now, transmission of H5N1 from poultry to human has been inefficient. Efficient human – human transmission is not documented. However, if the poultry outbreaks continue unabated, there is a risk (though not a quantifiable one) that the H5N1 may adapt to more efficient human-human transmission and lead to a pandemic. This emphasizes the need to control the outbreak in poultry, but this poses unique challenges in this region. Control of H5N1 in poultry requires early detection of outbreaks, depopulation of infected farms and enhanced bio-security in farms and in the poultry industry overall.

Control and Halting the Spread of Avian Influenza in Malaysia

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Summary

Avian Influenza (AI) H5N1 was first isolated in Malaysia in August 2004 in Kelantan, one of the States in Peninsular Malaysia. Poultry within the 1 km radius of the focus of infection was culled and a 10 km radius quarantine zone was estblished. In this zone, until today, intensive surveillance for bird flu are undertaken by the Department of Veterinary Services. Until mid September 2004, nine more cases of H5N1 AI viruses have been diagnosed, i.e. eight within the 10 km zone and one just outside, but all in Kelantan. It has been established that for the first two cases, 2 different strains of the viruses were involved as demonstrated by their genetic and cleavage site sequences. It was believed that the outbreak in Kelantan is due to the movement of fighting cocks and smuggling of cheap infected poultry into Malaysia from Thailand. All the cases so far are in village chickens. The DVS in the affected ares of Kelantan are taking rigorous action to control the spread of the disease. This action includes among others, enhanced surveillance and reporting, biosecutrity measures, movement control, quarantine and culling of affected birds.

National capacity for laboratory diagnosis, disease surveillance, control and eradication is linked through a functioning network centred at the HQ in Kuala Lumpur. The Emergency Response System established by the Department of Veterinary Services since mid 2003 have played a major role in coordination of the surveillance of AI in the country and in trying to stop the spread of this disease to other states in the country. The control of AIV in the outbreak area is based on International OIE and WHO regulations adopted and adapted for the implementation of the control and eradication of AIV in Malaysia. The DVS Emergency Response System comprises of several Teams linked and inter-connected with one another. These are the, Alert Management Team based in HQ, KL, Field Surveillance and Rapid Action Teams (RAT) of each states, The Regional Diagnostic Veterinary Laboratory Team and the Veterinary Research Institute (VRI), Ipoh RATs and Diagnostic Teams.

Currently, VRI has the capability to diagnose AIV according to the OIE standarads and this include diagnosis using eggs, Real Time RT-PCR (RRT-PCR), RT-PCR, and determination of amino-acid sequence of the cleavage site of the H5 HA protein to identify highly pathogenic Avian Influenza (HPAI) virus isolates. All these tests mentioned, complement each other in the diagnosis of AI. Using these techniques, AI diagnosis can be made as early as 5-6 hours using RRT-PCR and 8-12 hours using RT-PCR upon receipt of samples. Sequence data generated using molecular-based techniques are vital in the elucidation of the epidemiology of the disease in the affected areas.

The major concern of the department is aimed at immediate control or elimination of AI disease in flocks as for Kelantan in the village chickens, so as to stop spread of the disease to other States in the country and transmission of the virus from poultry to humans. AI viruses isolated and identified have been submitted to the OIE Reference Laboratories at Geelong, Australia for validation and WHO Laboratory at Hong Kong University for determination of the potential of the viruses to infect human, as there is a possibility of transmission to humans from birds and poultry and the possibility of human to human transmission.

Guangdong Entry-Exit Inspection and Quarantine Bureau lv ZhiPing

P L Zhi

Guang Dong Entry Exit Inspection and Quarantine Bureau PRC

Summary

After the tragic loss caused by SARS, another health killer—Avian Influenza is approaching humans silently. In January 2004, Avian Influenza virus H5N1 was found from a serious respiratory path infection patient in the north of Vietnam. Till September 7, 2004, there had been 39 human cases caused by H5N1 Avian Influenza virus, 28 deaths, with fatality rate 71.8%. Once gene of Avian Influenza virus had recombined with human influenza virus, new virus would appear with pathogenicity to human beings and ability of transmission between human, which may cause the outbreaks and prevalence around the world. In face of the serious situation, according to our successful experience fighting against SARS, we assessed the transmission risk of human avian influenza and gave alarm of corresponding level. We, what's more, established Surveillance and Quarantine Program of Human Avian Influenza at Frontier Ports. Based on the preparedness program, we took the following health and quarantine measures, strengthening surveillance and quarantine of entry-exit transportation vehicles and passengers by temperature screening, medical inspection, health declaration, and so on, setting down criterion of suspicious cases of human avian influenza, making epidemiological investigation and isolation of patients and suspicious patients, sending them to hospitals to receiving exclusion, taking personal protective measures, disinfection of polluted environments. Through executing measures strictly, there has never been a case of human avian influenza entering of exiting our country through the frontier ports, which contributes to prevention of transmission of human avian influenza.

Clinical Management of Influenza

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Summary

Recent developments in travel systems have enabled the influenza virus to spread throughout the world within a few days. Influenza pandemics continue to be a serious global problem. Antigen detection kits for diagnosis and neuraminidase inhibitors for treatment have recently been introduced, resulting in a revolution in the influenza management and control.

There are several antigen detection kits. Of them, the kits utilizing immunochromato-graphy technology have become predominant in the clinical setting. In general, these compact kits yield results in 15 minutes, a major improvement over the complex apparatus previously necessary for influenza detection. The sensitivity has been shown to exceed 90%. It should be noted that the sampling procedure is the most important factor affecting sensitivity.

In addition to amantadine and rimantadine, the neuraminidasae inhibitors oseltamivir and zanamivir, are now available for treatment of influenza. A merit of neuraminidase inhibitors is that they are effective not only for influenza A but for influenza B. Data obtained from 2,163 patients diagnosed with influenza A or B by an antigen detection test kit who visited clinics within 48 hours of onset in Japan showed that most patients become afebrile within two days of the first administration of anti-influenza drugs. The duration of fever from the onset was significantly shorter for patients administered the drug within 12 hours of onset than for patients past 12 hours. The duration of fever was shorter for patients with the highest temperature under 39°C than for those with temperatures equal to or over 39°C. The duration of fever was significantly longer for influenza B than for influenza A. Multiple regression analysis found the type of influenza, the highest body temperature, and the interval between onset and the start of treatment to be independent factors. Sex, age, and vaccination status were not. The drug administered, oseltamivir or amantadine, was also not an independent factor. Oseltamivir is popular for the treatment of influenza in Japan and no sever adverse reactions have. Anti-influenza drugs are also effective for prophylaxis.

Although vaccination will continue to be a basic tool for the control of influenza, antigen detection kits and anti-influenza drugs are powerful tools for the clinical management of influenza.

Cardiovascular, Renal and Endocrine Diseases

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Summary

Travellers with cardiovascular diseases represent a wide category of persons including patients with myocardial ischemia, cardiac arrhythmias,valvular heart diseases, systemic hypertension, heart failure, congenital heart diseases, etc.

Along with accidents, cardiovascular disease (including myocardial infarction and cerebrovascular accidents) is a leading cause of mortality among adult travellers. Travel may be a risk factor because it easily causes severe physical exertion, emotional stress, oxygen reduction for high altitude exposure, jet-lag disturbance, very hot or very cold exposure, and dietary change. The General Practitioner or the cardiologist must take into account the severity of a particular patient's disease, the necessity or importance of the trip, and how well the patient functions in daily activities. He/she should give the following recommendations:

1. Make a medical examination of your heart condition before departure
2. Carry your medical history (i.e. the health passport) including the most recent electrocardiogram and any important laboratory results
3. Keep your medication handy in a carry on a bag when flying or using ground transportation
4. Store medication appropiately and abel drugs clearly
5. If you travel with a pacemaker, carry the data card for the implanted pacemaker complete with regular information updates
6. Stay hydrated drinking plenty of fluids and limit alcohol and caffeine
7. Eat correctly, avoid overeating and do not smoke
8. Not to overextend yourself
9. Be aware that infectious diseases can increase the risk of cardiovascular complications
10. Prefer destinations with health facilities and hospitals of good quality

Diabetics face no travel restrictions, but they should plan for increased blood glucose monitoring and prepare for the potential problems of hypoglycemia and hyperglycemia due to the disruption of daily routine and the stresses of travel. Diabetics should be encouraged to packing the following supplies in quantities sufficient to last the entire trip: insulin, syringes, supplemental bottle of regular crystalline zinc insulin for emergencies, blood glucose testing strip and lancets, urine ketone and glucose strips, fast oral sugar source, snack, and sweet nondiet beverages for treating hypoglycemic episodes, food such crackers and cheese or other snacks in case of meal delays, sugar substitutes and extra batteries for glucose meters.

Diabetics should also carry a glucagon emergency kit for use in case of hypoglycemia resulting in unconsciouness. Prior to travel, patients should instruct a travel companion both in the signs of hypoglysemia and the use of the kit. Diets should be requested at least 24 to 48 hours in advance for airline travel.

Travelers with kidney diseases should be well informed about the medical facilities in the cities thew will visit. Dialysis is available in many parts of the world for patients who wish to travel. Apointments must be arranged and confirmed ina dvance. Patients should carry a medical summary and treatment recommendations from their physician, as well the results of a recent hepatitis B antibody test. In Europe, information can be obtained from the International Dialysis Organization, France. Various tour operators specialize in tour and cruises for dialysis and kidney transplant patients, with access provided to the necessary medical resources.

Travel Requirements of Special Groups-Children and Older Persons

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Summary

General Approach

The travel requirements of special groups include (1) initial risk assessment, determining the risks of the destination, mode of travel and the special conditions of the traveler; (2) vaccinate when possible and indicated; (3) provide the traveller with appropriate empirical self-treatment, including a travellers' medical kit and, where appropriate, the name of a physician or clinic at the destination, including a detailed doctor's letter; (4) consider chemoprophylaxis when possible and indicated; (5) consider any concerns regarding underlying conditions and possible drug interactions; (6) consult experts in travel medicine or specialty areas as necessary; (7) educate the traveller, understanding that this aspect may need considerable reinforcement, including written information; and (8) indicate to the traveller that vaccination, self-treatment and chemoprophylaxis are not 100% protective and they should seek medical advice if they become sick.

Children

In addition to normal preparations for travel, children have special needs that vary with age, health, and their behaviour. Children may encounter greater problems with hygiene and with their natural curiosity can expose themselves to infection and injury, especially from animals. Medications, such as malarial chemoprophylaxis and antibiotics for standby treatment that are dosed by weight, may require special attention. Routine childhood vaccinations may need to be accelerated for young infants travelling before the standard primary vaccination course can be completed.

Older persons

As the average life expectancy increases, older people want to travel. Despite some physical limitations due to age, travel is becoming increasingly available to older people. Five to 8% of travellers in tropical areas are older persons. A pre-travel health risk assessment should be carried out according to the usual factors, including the itinerary as well as the medical condition of the travelers. Like other travellers, older people should be provided with a copy of their medical history and current medications in a doctor's letter. It is useful to get some information on the health service available in the country that the older person intends to visit. Travel health advice needs to focus on common problems, including traveller's diarrhoea. Traveller's diarrhoea can sometimes be severe with older people causing risk of dehydration. In addition, this population often uses multiple medications for chronic illnesses and potential drug interactions should be considered with medications prescribed for travel, eg. antimalarial drugs.

Preparing Children for Overseas Travel: An American Perspective

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Summary

Travel provides children with knowledge and experiences that enriches their education, helps build their self confidence, promotes family cohesiveness, and creates memories for tomorrow. But family travel is never all fun and games. Parents should read books, browse the internet, speak to parents who have been there, and then ask themselves, "Is this trip appropriate for my children?" and "Will my children benefit from it?" Some destinations are best avoided because of safety considerations, poor sanitation, infectious diseases, absence of medical facilities, and the need to take vaccines and medications that may have adverse effects. The availability of good health care overseas is especially important for children with ongoing health problems (asthma, for example).

Parents should be reminded that children get ill often whether they travel or not, and that travel may increase the number of illnesses. And that overseas, the parents will have less health care backup than they have at home, and that health care may be perfunctory and personnel may spend little time answering questions. Parents' lack of fluency in local languages also can present an obstacle when dealing with children's health care problems. Parents should know that injections are rarely indicated for office visit-type illnesses. In non-emergency situations, when treatment recommendations seem to be out of the ordinary, parents may want to check with their health care providers back home.

Medical Kit

A telephone and the telephone numbers of all the children's health care providers back home are integral parts of a modern first aid kit. Consulting with familiar health care providers gives parents peace of mind and often solves issues at hand. Cellular telephones are operational from an ever larger area of the world.

A small medical kit specifically prepared for each child is very useful in taking care of many problems that may arise. A three-pronged approach helps in assembling such kits:

- Bring medications for illnesses that the child experiences at home. Even in the tropics, a child is more likely to have illnesses that he or she would have at home (earaches and stomachaches, for example) than exotic diseases.
- Pack standard first aid-type items – thermometers and bandages, for example.
- Include trip-specific items – sunscreens, rehydrating powder and antimalarials, for example.

A basic medical kit may include the following:

- Medications that the child has used in the past two years
- Antiseptic wipes, thermometer, gauze bandages
- Insect repellents and sunscreens

- Packets of oral rehydrating solutions
- Antibacterial soap
- An antibiotic (e.g., amoxicillin)
- An antihistamine (e.g., diphenhydramine)
- *Antibiotic and antifungal ointment*
- Acetoaminophen
- *Ibuprofen*
- *Hydrocortisone ointment*
- Malaria medications for prophylaxis and standby treatment
- First Aid Book

Parents should have in writing the dose, time interval, and duration of usage of each substance.

Finding Competent Medical Help Away from Home

It is very reassuring for parents to have the names and addresses of local health care providers at the family's destination. Such names can be obtained from a number of sources. Specialist physicians often have directories including members overseas. Travel medicine practitioners have contacts overseas. The International Society of Travel Medicine (www.istm.org) has a directory of members in about 60 countries. IAMAT, the International Association for Medical Assistance to Travelers (www.iamat.org), has a directory which supplies lists of English-speaking physicians in all parts of the world. Embassies and consulates also have lists of local, English-speaking physicians.

Parents should carry travel assistance insurance. Such insurance provides world-wide, 24-hour telephone "hotlines" which direct callers to competent English-speaking physicians and hospitals, pay for treatment and hospitalization at the time of the incidence, and, when medically indicated, arrange and pay for evacuation to a medical facility that can provide necessary treatment. Companies that provide such insurance include Medex (www.medexassist.com) and International SOS (www.internationalsos.com), for example.

In urgent situations, parents should take their children to the largest medical facility in the area. Such facilities are more likely to have pediatric units and trauma services. Waiting for a physician to arrive in a hotel room wastes much time and physicians can do little there. Before leaving the facility, parents should ask for the diagnosis, the results of tests performed, treatment, and receipts for fees paid. This becomes helpful in addressing ongoing illnesses and for reimbursement later.

Safety Concerns

For travelers of all ages, accidents are a greater hazard than illness. A study in the U.S., for example, found at least one safety problem with cribs, playgrounds or pools in 82% of hotels randomly selected for inspection. Parents must be reminded that homes they visit may not be "childproof": unlike the child's home, these homes may have medications on nightstands, no gates on stairs, no locks on kitchen cabinets, and lamps at edges of tables. In hotel rooms, suitcases and clothes should not be left on the floor, and installing a night light helps prevent tripping. In rural parks, the most common causes of injuries are automobile-related, falls, knives and axes, and campfires. Many such parks have visitors' centers with brochures and bulletin boards outlining safe activities and providing information about local hazards and emergency telephone numbers.

Children tend to be fascinated with animals and use poor judgment around them, and they may not report minor licks and bites. In many areas where rabies exists, 40% of cases occur in children. Stray dogs are common in developing countries. Monkeys congregate around temples and other shrines in Southeast Asia, and some have rabies. Food should not be eaten around monkeys lest the monkey jumps

for the food and bites the child in the process. In some countries, safety standards are poorly enforced. Automobiles are often poorly maintained and lack safety restraints. Parents should rent cars and specifically request safety restraints before leaving home. Country-specific driving information can be obtained from the Association for Safe International Road Travel (ASIRT) (www.asirt.org). Balcony railings may be low and have spaces for young children to crawl through. Bathroom faucets may be confusing and water may be scalding hot. Amusement park rides may be rarely inspected. Few swimming facilities have lifeguards. Children should wear personal floating devices when playing near the water as well as in the water and on boats. Parents should not be distracted by taking pictures and looking at sights. Toys purchased abroad should be checked for safety.

At tropical beaches, parents should ask responsible local people about hazards and, if necessary, where to get first aid. Walking barefooted is the source of infections and injuries. Coral wounds and jellyfish stings are annoying, and occasionally cause problems that need specific treatments not locally available. Children often panic when parents are out of sight and start running, complicating finding them. They should be instructed to remain where they are if they become separated. Providing older children with a whistle in the wilderness is helpful.

Vaccine Issues

Routine Childhood Diseases

Routine childhood vaccination programs vary from country to country regarding which diseases children are immunized against, specific vaccines used, timing of injections, and vaccine combinations. Some "childhood" diseases remain prevalent in many developing countries and outbreaks still occur in countries where the diseases are rarely seen or were thought to have been eliminated. Some developed countries do not have universal vaccination programs against all vaccine-preventable childhood diseases, or have poorly managed programs. In 2000, there was an outbreak of polio in Haiti and the Dominican Republic where no polio had occurred in over a decade. In the 1990s, outbreaks of measles occurred in Ireland and Brazil, pertussis in Holland, and diphtheria in the countries of the former Soviet Union.

In most developed countries, children receive vaccines at ages at which they respond with optimal and long term protection, not necessarily the age at which children first become susceptible. For traveling overseas, vaccines may have to be given before the optimal age, and, because of time restraints, the intervals between doses shortened or only one or two dose(s) of a multi-part vaccine series given. Generally, starting vaccines at slightly younger than the recommended age, and somewhat shortening intervals between doses results in acceptable, but not optimal immunity. If doses are given much earlier than the optimum age, or intervals between doses are shortened significantly, the doses generally have to be repeated at a later date. Supernumerary doses do not cause known serious side effects, though in some cases giving them may increase local reactions (diphtheria/tetanus and rabies vaccines, for example). With the exception of the oral typhoid vaccine, doses given at longer than recommended intervals need not be repeated, even after prolonged lapses. However, children are not reliably immune until the series is completed.

For long stays overseas, parents must be advised about the timing of future immunizations and the advisability of receiving them overseas; some vaccines are not available in all countries. Ideally, booster doses should be given during visits home. While vaccines used in most of the world appear to be effective, the storage of vaccines and the sterility of syringes and needles in some countries may be suspect. Parents should carry immunization records which state the name of each vaccine, not the trade name of multiple vaccine preparations.

Though all combinations of vaccines have not been evaluated, it appears that numerous vaccines can be given at one time without affecting immunogenicity or increasing side reactions; seven vaccines have been administered at one time without untoward affects. Generally, vaccines for the same infection produced by different manufacturers appear to be compatible. Live virus vaccines should be given either on the same day or more than 28 days apart. Live virus vaccines – and certain acute infections – can create an anergic state during which tuberculin skin tests can yield false negative reactions; tuberculin testing can be performed on the same day the live vaccine is given or 28 or more days later. Immune globulin (IG) and IG-containing products (blood, for example) interfere with the replication of some live virus vaccines, diminishing the antibody response to the vaccine(s). Parents should update their own vaccinations to childhood diseases; traveling with children may increase the parent's risk of exposure to local children.

Travel-Related Vaccines

Recommendations for travel-related vaccines for children differ substantially from recommendations for adults, and from country to country. Especially important are lower age cutoffs, ages under which the vaccine should not be given because of poor immunogenicity or adverse effects. These cut-off ages vary with each vaccine.

Cholera

Few children acquire clinical cholera when they travel and cholera vaccines are rarely indicated. Common sense food and water precautions prevent most cases. Though cholera is a potentially serious disease for travelers of all ages, it is treatable with fluid replacements and, if necessary, antibiotics.

Various cholera vaccines are available world-wide. Whole-cell parental cholera vaccines are no longer manufactured in developed countries but may be available elsewhere. Presently no cholera vaccine is available in the U.S. Two oral cholera vaccines are available in various other countries. CVD 103-HgR, (Mutachol, Orochol) is a live, one-dose cholera vaccine. The U.S. Food and Drug Administration (FDA) refused to approve it for the U.S. market, in part because "the manufacturer's studies did not support giving the vaccine to children." The vaccine is not recommended for children under the age of two years.

Whole cell/recombitant B-subunit of cholera toxin (Dukoral) is an inactivated two-dose vaccine which also provides some protection against enterotoxigenic E. coli, the most common cause of travelers' diarrhea. The vaccine is indicated for adults and children two years of age and older. While the vaccine has been given to children between one and two years of age, the protective efficacy for this age group has not been established. Children six years of age and older receive the same doses as adults. For children ages two through six years, the instructions for preparing and administering the vaccine differ from those for adults.

Hepatitis A

In many developing countries, more than 90% of local children have hepatitis A antibodies by six years of age. But this percentage is decreasing in some areas, the result of improving sanitation. In developed countries, few children have had the disease and therefore are susceptible when traveling to high risk areas. Generally, for children, hepatitis A is an asymptomatic condition yet provides life-long immunity. However, children in diapers shed virus in their stool and may infect non-immune adult caretakers. Vaccination is recommended for children who travel to developed countries to visit family and friends, and for those who eat at local restaurants. Hepatitis A vaccines appear to be effective in children one year of age and older and have few and mild side effects. The lower age recommendations vary by country, one year in the U.K and two years in the U.S., for example. In some countries, vaccination is

recommended only for certain destinations and for children over ten years of age. Pediatric preparations contain smaller doses of antigen than adult formulations. Children too young for hepatitis A vaccine may receive immune globulin, the dose determined by the weight of the child and the length of exposure to the disease, up to six months.

Hepatitis B

The earlier in life a child acquires hepatitis B, the greater the risk of chronic disease. Many infants and young children in endemic areas have no obvious source of infection. Likely, they become infected when skin lesions such as insect bites or scratches become contaminated with minute amounts of blood from infected individuals. Skin lesions are especially common in tropical countries. All children traveling to developing countries should be vaccinated.

Vaccine recommendations for children are identical to those for adults, though the dosage for individuals less than 19 years of age is generally half the adult dose. Immunity requires three doses over six months. If time is limited, adult accelerated schedules can be used, with the proviso of an additional dose 12 months later. The vaccine must be injected into the anterior thigh or deltoid area (upper arm); injections into the gluteal area may not reach muscle and therefore may be less effective.

In most developed countries, hepatitis B vaccination is now universal. Immunization starts at birth. Vaccines used are produced by recombitant DNA technology using baker's yeast which has been genetically modified to synthesize hepatitis B surface antigen. Vaccines prepared from plasma of hepatitis B carriers may still be used in some countries.

Japanese Encephalitis

Among local people in endemic areas, the age-specific incidence of Japanese Encephalitis is highest in young children but, likely, for travelers, susceptibility is the same at all ages. The incidence in travelers is very low: among Americans visiting countries where the disease exist, the incidence is less than one in a million with most cases in military personnel, and very few in children. Many countries in endemic areas vaccinate children during the first year of life, greatly decreasing the incidence. But low incidence does not protect visitors. The causative virus is transmitted by mosquitoes. Pigs and birds are the main reservoirs. Most cases occur in rural areas, especially around rice paddies and pig farms. Protection against mosquito bites helps reduce the risk. In some areas the disease is seasonal.

A purified, formalin-inactivated, mouse-brain-derived vaccine (JE-VAX) is available in most developing countries; other vaccines are available in endemic areas. Vaccination is generally advised only for travelers spending a month or longer in rural endemic areas. The dose for young children is generally less than for older children and adults. Immunization consists of three doses, over two to (preferably) four weeks. Reactions to the vaccine are similar in young children as in adults, are most common after the second dose, and may occur several days after immunization. Most vaccines are approved for children one year of age and older.

Meningococcal Meningitis

Occurs in all countries, especially in young children. The incidence is particularly high in the "meningitis belt" which extends from Senegal and Guinea on the Atlantic Coast to Ethiopia on the Indian Ocean and among pilgrims to Saudi Arabia for the Haj.

The most common disease-causing serotypes are A/B/C/Y/W135. Various vaccines are available in different countries: a polysaccharide vaccine against A/C/Y/W135 (U.S.) and a conjugated A/C vaccine (U.K.), for example. The polysaccharide vaccine is poorly immunogenic for children under the age of two years. Conjugated vaccines are effective in infants. Both vaccines appear to be 85 to 90% effective in preventing disease. (New vaccines against serotype B, an important cause of meningococcal meningitis, are not yet widely sued.) Vaccination against the disease is recommended for travelers to the meningitis belt and is required for the Haj.

Rabies

In many areasof the world, 40% of all human rabies occurs in children less than 14 years of age. Children are attracted to animals (making them more likely to be licked or bitten), are more likely to suffer bites around the head and neck (the cause of more serious disease), and may not report minor encounters with animals. Each exposure is potentially deadly and must be treated promptly and optimally.

Children should receive pre-exposure rabies vaccine for prolonged stays in countries where rabid animals are common and where prompt, optimum treatment may not be available. Optimum treatment is a facility that stores good quality rabies vaccine and rabies immune globulin (RIG) and has personnel that are knowledgeable in cleaning and debriding wounds. Timely and optimum treatment soon after exposure is virtually 100% effective in preventing rabies. There are many good grade vaccines including human diploid cell vaccine, chick embryo culture vaccine, and Rabies Vaccine, Adsorbed. However, many rabies vaccines available at local clinics in developing countries are produced in animal neural tissue (often sheep brains) and may give frequent and serious adverse reactions. Treatment recommendations for infants and children are the same as for adults.

Tick-Borne Encephalitis (TBE)

Many countries in Central Europe vaccinate children against TBE. The disease often causes neurological sequelae and occasionally death. Most cases occur in the springtime when the tick vector is most numerous. The disease is rarely reported in travelers, especially children. Insect precautions reduce the chances of infection. The vaccine is not generally available outside of Europe. Full vaccination requires a year, making vaccination impractical for travelers. However, new evidence suggests that vaccination over a several month period is also effective, including in children.

Tuberculosis (TB)

Travel plays an important role in the epidemiology of TB. In an area of California with a high immigrant population, the incidence of positive TB skin tests among children born in the United States and who had traveled to a country with a high incidence was 4.7 times that of matched children who had not traveled. In the same area of California, children who had a household visitor from such a country were 2.4 times more likely to have a positive test than those who did not. On rare occasions, TB has been contracted in-flight from a passenger seated nearby.

Recommendations for giving bacille Calmette-Guerin (BCG) vaccine vary greatly from country to country. In many countries, developed and undeveloped, all children receive BCG soon after birth. In other counties it is given only to children at increased risk (older children traveling to developing countries, for example). In the U.S, BCG is almost never used. Instead, children traveling to areas with increased risk are given Mantoux tests before and after travel and, if they convert to positive, are treated.

Typhoid Fever

In most developed counties, killed whole cells vaccines have been replaced by two products: an oral,

live, attenuated strain, Ty21a; and a parenteral, polysaccharide antigen vaccine, Typhim Vi. Other typhoid vaccines exist elsewhere.

Ty21a is licensed for use in children six years and older and requires swallowing, not chewing, a capsule, a task difficult for some children. A liquid form of the vaccine is available in some counties. The safety and efficacy of Ty21a for younger children has not been established. Children receive the same dose of Ty21a as adults: three or four capsules, depending on the country, one capsule every other day. Three-dose scheduling may require annual boosting while four-doses may give immunity up to five years. Antibiotics and mefloquine may interfere with Ty21a absorption. Typhim Vi (one injection for all ages) can be given to children two years of age and older.

Both vaccines appear to be about 60 to 70% effective in children, as in adults. A large inoculum of salmonella organisms can overcome protection of all three vaccines. A conjugated typhoid vaccine has been developed and tested in Vietnam, a country with a high incidence of the disease. In a study involving more than 10,000 subjects, those receiving the placebo developed typhoid fever 23 times more frequently than those receiving the vaccine.

Typhoid vaccination is indicated for all travelers to the Indian subcontinent as well as for travelers to developing countries, Eastern Europe, and the Caribbean who visit rural areas, stay with friends and families, and eat meals at local restaurants. Vaccination should be completed about two weeks before possible exposure.

Yellow Fever

Though some countries require yellow fever vaccinations of all travelers, infants under the age of six months should not be vaccinated. Most known cases of yellow fever vaccine-associated encephalitis have occurred in this age group. Infants between six and nine months of age should be immunized only if they travel to areas of ongoing epidemic and a high level of protection against mosquito bites is not possible. A physician's letter generally suffices to waive requirements. However, such infants are at risk of a life-threatening disease for which there is no treatment.

Yellow fever vaccine is virtually 100% effective and one injection (for all ages) provides immunity lasting for at least ten years, possibly much longer. Individuals allergic to eggs are at risk of severe allergic reactions. Vaccination must be completed at least two weeks before entering a country requiring official international yellow fever vaccination certificate.

Travelers' Diarrhea

Children, as compared to adults, experience a higher incidence of travelers' diarrhea, have more severe symptoms, and have symptoms tending to last longer. Causes include placing their fingers and other objects in their mouths, swallowing water while bathing and swimming, not washing hands, making improper food and beverage selections, being cared for by local caretakers, and lacking resistance to diarrhea-causing organisms. Infants in diapers may spread the disease to their parents. Illnesses occur more frequently when children swim in non-chlorinated water such as rivers and ponds. But chlorine does not kill all gastrointestinal disease-causing microorganisms (cryptospridium and giardia, for example). As few as 100 such organisms, a number easily contained in one swallow of moderately contaminated water, may be sufficient to cause disease. Children should shower or bathe before entering recreational swimming areas be kept out of the water while having gastrointestinal illnesses or while still wearing diapers.

Water from lakes and streams must be treated before being consumed. Boiling is the surest method of purifying water. Filters and halogens (iodine and chlorine) are generally safe when used correctly. Water that comes out of a faucet too hot to drink immediately is also usually safe. Carbonated bottled water is safer than non-carbonated bottled water; carbonation acidifies the water. Electric immersion coils are helpful to boil water when traveling with small children.

Treatment of diarrhea in young children can be problematic: they often refuse fluids when they need them the most, some adult medications are not appropriate, and reliable medical facilities may not be at hand. Treatment consists of starting commercial oral rehydrating solution (ORS) as soon as symptoms begin and continuing regular feedings. ORS contains ratios of glucose, sodium, potassium, chloride and other substances that permit optimal absorption of fluids and nutrients from the intestinal tract even when diarrhea is severe, and replaces fluids being lost. ORS is available in convenient packets and must be mixed with treated water.

Continuing feedings during diarrhea helps prevent dehydration, reduces stool frequency and volume, and shortens the duration of symptoms. ORS should be continued even in the presence of vomiting. Older children should be offered bananas, cooked rice, wheat, and potatoes, for example, in addition to ORS. If ORS is not available, plain treated water plus salted crackers, mashed potatoes or banana will suffice. Ongoing diarrhea in a child who is otherwise healthy – drinking and smiling – is virtually never an acute problem.

Medications are rarely necessary and may be harmful. Kaolin and pectin products reduce bowel movements but retain stools in the intestine. Bismuth subsalicylate (Pepto-Bismol) contains too much salicylate (although it has been used without ill effects); Loperamide (Imodium) and diphenoxylate (Lomotil) are not recommended for children under two years of age. In older children, both may cause intestinal fluid retention, and diphenoxylate, delayed toxicities. Doxycycline stains teeth; Quinolones, in animal studies, cause destructive lesions in cartilage of weight-bearing joints and are not approved for children, though they may be effective in treating diarrhea.

When fluids alone do not control diarrhea, azithromycin, furazolidone and trimethoprim/sulfamethoxazole (TMP/SMX) are often effective, but resistance to these substances is increasing. TMP/SMX is available as a liquid and does not require refrigeration. In some countries, TMP/SMX is not available because of fears of toxicities. Prompt, competent medical attention is essential when children are lethargic, refuse liquids, or have continuous severe vomiting, bloody diarrhea, or high fever.

Malaria

Simple, physical methods are the first line of defense in protecting children from malaria and other insect-transmitted diseases. These methods include placing nets over carriages and cribs; eliminating standing water around living quarters; staying indoors when local insects are most likely to bite; sleeping in air conditioned quarters; wearing long-sleeved clothing that fits tightly over neck, wrists and ankles; and wearing shoes and socks. Many biting insects fly close to the ground. Insect repellents containing about 20% DEET (N-diethylmetatoluomide) as the active ingredient are effective and safe. Insect repellant should be applied to exposed skin only; the more skin covered with clothing, the less insect repellant necessary. Serious DEET-related toxicities have occurred only from extremely inappropriate overuse. Skin reactions are rare and can be minimized by avoiding repellant on damaged skin and washing off the repellant when protection is no longer required. Alternative insect repellents – baby oils, citronella coils, mosquito lights, and sound machines, for example – are far less effective than DEET. In areas where insects carry significant diseases, clothing and bed nets should be treated with a permethrin insecticide.

The choice of prophylactic antimalarials for children depends on the region of the world visited, the type of malaria present and its resistance profile, and the age and weight of the child.

Chloroquine is the drug of choice for chloroquine-sensitive malaria. In some countries it is available only in bitter-tasting tablets, in others as syrups. Concentrations of chloroquine in the syrups vary. Chloroquine side effects tend to be mild: gastritis, headaches, dizziness, blurred vision, and pruritis. Reactions can be reduced by taking it with meals or in divided, twice-weekly doses. Chloro-quine must be stored out of the reach of chil-dren; ingestion of several tablets or teaspoons can be fatal to a small child.

Mefloquine is effective against most chloroquine-resistant malaria; how-ever, resistance to mefloquine is spreading. Meflo-quine is prescribed according to a child's weight, often in fractions of a tablet. There is no liquid preparation. Tablets can be crushed, then divided into powder and given with apple-sauce or chocolate syrup; these disguise flavors. Restrictions against using mefloquine for infants weighing less than 15 kg have been discontinued. Small children may vomit soon after ingesting mefloquine; doses should be repeated if vomiting occurs within 30 minutes. Children with a history of seizures or of using anticonvulsant medication should not be pre-scribed mefloquine. The neuropsychiatric side effects reported to occur in adults are rare in children.

The combination of daily doses of proguanil with weekly doses of chloroquine is an alternative to meflo-quine, especially in Africa. Proguanil is not available in all countries. Side effects include diarrhea, mouth ulcers, and, less frequently, temporary hair loss. Doxycycline is another alternative to mefloquine but is contraindicated in children less than 9 to 12 years, depending on the country, because it may interfere with bone growth and may cause teeth staining. Doxycycline may also enhance sunburns. Atovaquone/proguanil (Malarone) is available in pediatric tablets, 62.5 mg atovaquone and 25 mg proguanil, but not in a liquid formulation. It is well tolerated by children and has few safety concerns.

Parents must be aware that optimal chemoprophylaxis is not 100% effective in preventing malaria; that medications must be taken regularly, even when children are ill; that unexplained fever in an area where malaria exists must be assumed to be malaria until proven otherwise; and that gastrointestinal symptoms and fever in children are frequent early symptoms of malaria. Medications requiring daily doses, because of their short half-lives, may be more critical if doses are missed than weekly medication. Generally, parents should be advised to not start an antibiotic for "fever" as this may worsen malaria. In areas where malaria exists, families should never be far from competent medical facilities.

Environmental Conditions

Parents should be familiar with local hazards when they travel. Depending on location, an irritable or lethargic preverbal child may be experiencing acute mountain sickness, early hypothermia, frostbite, snow blindness, or a heat-related condition. Facial sunburns have occurred in infants being carried in child carriers. Proper winter sunglasses are a must; the reflection of the sun from snow, especially in hilly terrain, results in intense ultraviolet radiation reaching exposed skin and eyes. Large sunglass lenses avoid reflected radiation. Snowmobiles pose a significant risk to children, both while riding them or being hit by one. Winter vacations in the tropics involve intense sun exposure. A severe sunburn early in life is a risk factor for skin cancer decades later. Skin damage is cumulative over a life time. Parents can minimize problems by speaking to knowledgeable local people, checking weather reports, preparing for adverse conditions, planning realistic time frames for outdoor activities, and carrying water, snacks, and a telephone.

Altitude

The incidence of acute mountain sickness (AMS) is the same at all ages and depends on the rapidity of the ascent and the altitude reached. Air travel allows families to go to high altitude destinations in a matter of hours, faster than their bodies can acclimatize to changes in atmospheric pressure. Symptoms of AMS include headache, fatigue, loss of appetite, nausea, vomiting, irritability, excessive shortness of breath with exercise, and inability to sleep. Symptoms of AMS generally begin between 24 and 72 hours at altitude, and often at night, when breathing is less efficient. AMS seems to develop more often in children who have recently had upper respiratory infections.

Most cases of AMS in young children can be prevented if parents are familiar with the condition, able to recognize symptoms early, and know what to do should it occur. Gradual ascent prevents virtually all cases. Identifying AMS in infants and young children can be problematic; similar symptoms occur with viral infections and merely from being away from home. Parents should choose high altitude destinations where medical care is readily available and all-weather, rapid descent is possible; a descent of 300 meters is often sufficient to relieve symptoms. Oxygen and/or acetazolamide (Diamox) relieve AMS when prompt descent is not feasible. Acetazolamide is also effective in adults in both preventing AMS, and has been used in children, though it is not officially approved for such treatment. The prophylactic dose most often recommended is 2.5 mg/kg twice a day starting about 24 hours before ascent and continuing for two days at altitude. AMS-related headaches often respond promptly to aspirin (for older children), ibuprofen or acetaminophen, and to an increased fluid intake.

Air Travel

Healthy newborn infants can safely travel by air though some airlines still have age-based restrictions for infants in the first weeks of life. The restrictions stem from the early days of aviation when aircraft were not pressurized, oxygen was sometimes required during flights, and little was known about newborn physiology.

Modern jet airliners have simulated cabin atmospheric pressures between 5,000 and 8,000 feet (1,500 and 2,400 meters). At this pressure, arterial blood oxygen saturation of healthy passengers of all ages decreases from near 100% at sea level to about 90 to 92%, a saturation level well tolerated by healthy newborns. Air travel and visits to high altitudes may NOT be safe for the rare infants with severe anemia, congenital heart disease (especially abnormalities of the right side of the heart), and lung disease. Children with sickle cell trait virtually never have problems during flight but children with sickle cell disease and sickle cell disease variants can become symptomatic.

Air travel is safe for infants and young children experiencing upper respiratory infections, nasal allergies, and ear infections, though discomfort may rarely occur. Children traveling by air with ear infections rarely experience pain. Such infections usually produce fluid in the middle ear. The fluid obliterates the middle ear air space, preventing pressure differentials between air in the middle air and the outside. Aerating tubes also prevent pressure differentials from occurring. Decongestant nose drops and sprays and oral antihistamines do not appear to be helpful in children.

Feeding Infants During Flights

Conventional wisdom recommends giving bottles or nursing infants during ascent and descent, frequently during the flight, and when infants become fussy or cry. The rationale: infants cry because they are experiencing ear pain and/or are dehydrated. But frequent feedings may be counterproductive and may be one of the reasons that some infants cry during flight. Ear pain rarely occurs, and in-flight dehydration is an oft-repeated myth.

Adult air travelers often erroneously interpret as dehydration the fact that the mucus membranes in their mouth and throat become parched. The dry membranes are the result of the aircraft's air conditioning removing most of the humidity from the cabin air. This is not dehydration. Adults who eat and drink during flight almost invariably gain weight, some of it in the form of fluid accumulation in their legs.

At the cruising altitude of jet aircraft, the air in the stomach and intestine is already expanded by 20%, the result of lower atmospheric pressure. Sucking on a bottle or breast adds more air, increasing discomfort, and may cause more crying. Parents should feed infants no more often during flight than they do at home, and allow them to feed briefly during ascent and descent.

Antihistamines/Tranquilizers

Parents often request medications, usually antihistamines, to sedate their infants and young children for long flights to make the children more manageable for parents and less annoying for other passengers. In fact, with some exceptions, infants and children tolerate air travel remarkably well. There is little rationale for sedating them, even for long night flights. There are no data as to which medication to choose, how much to give and when to give it, and whether or not it is effective. Parents who have given their children antihistamines for long flights often say that it was not helpful or made their child more difficult to manage. It is known that antihistamines can make some children more active, especially children who have a natural tendency to be active. Also, in adults, medications (tranquilizers, for example) taken in conjunction with long flights through many times zones sometimes results in enhanced or altered reactions.

The Haj "A Holy Ritual and a Health Nightmare"

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Summary

The Haj is the largest congregation of people in the world. It is a very strenuous experience especially for the old and feeble pilgrims. It is a fertile area for the propagation of communicable diseases. Heat exhaustion and sunstroke are but another cause of mortality and morbidity. This paper is intended to give a detailed discussion of the Haj ritual and all the health problems encountered. It will also show that there are other major incidents, which has and will occur during Haj. They are not related to health problems. However, the health services are the end sufferers of any disasters occurring during Haj. All the necessary steps, which are adopted by the Saudi authorities, are discussed. Certain procedures could be adopted which might minimize the problems occurring during the Haj thus reducing the health nightmare of this Holy ritual.

People-Movement in the Asia-Pacific Region Issues in Migration Health

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Summary

Migration Health involves consideration of the health impacts that increasing mobility of human populations produces. These impacts can affect nations, communities, and individuals. Globally, nearly 3% of the world's population live outside the coutry of their origin, and within the Asia-Pacific Region, there are well-established major patterns of human migration.

Human migation causes an increased risk for transmission of communicable diseases, new demands on health systems, and the need for a new skill set for individual practitioners.

An overview of the main forms of people-movement in the Asia-Pacific Region is given, and discussion about the implications for public health policy as well as individual practice.

Travellers' Diarrhoea

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Summary

Risk of travelers' diarrhea is about 7% in developed countries and 20-50% in the developing world. Options for prevention include education and chemoprophylaxis. Vaccination is a promising but incomplete option. Achieving behavior modification of food and water choices among tourists is difficult. Bismuth subsalicylate-containing compounds are about 62% effective in the prevention of travelers' diarrhea. A safe, non absorbable antibiotic, rifaximin, is 70+% effective in prevention. The availability of rifaximin raises the possibility of the routine use of chemoprophylaxis in the management of travelers' diarrhea. Oral rehydration is generally important in the treatment of diarrhea, but travelers' diarrhea is only infrequently dehydrating in adults. The addition of ORS confers no additional benefit to loperamide in the treatment of travelers' diarrhea in adults. Antibiotics available for treatment of travelers' diarrhea include fluoroquinolones, azithromycin and rifaximin. Rising resistance to fluoroquinolones of Campylobacter in SE Asia makes azithromycin a preferred choice in this region of the world. Rifaximin should not be used in the treatment of Shigella, Salmonella or Campylobacter, so its use should be limited to the treatment of afebrile, non-bloody diarrhea in regions of the world where enterotoxigenic E. coli is the prevalent pathogen. Less severe disease can be treated with a variety of non-antibiotic agents (e.g., bismuth subsalicylate-containing compounds, loperamide, the calmodulin inhibitor, zaldaride, or Provir, a novel antisecretory agent. The combination of loperamide with an antibiotic (fluoroquinolone or azithromycin) is superior to treatment with either agent alone in several studies and is arguably the treatment of choice for distressing travelers' diarrhea.

Newly Developed Method for Dengue Diagnosis

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Summary

Japan experienced dengue outbreaks in Nagasaki, Hiroshima, Kobe, and Osaka Cities between 1942 and 1945, but not thereafter. Imported dengue cases have been frequent recently in Japan. We attempted to detect dengue cases at the quarantine station of the New Tokyo International Airport, Narita, since 1998. We collected blood specimens from 155 passengers who came back from tropical and subtropical area who decleared health problem and had been diagnosed by doctors with suspected dengue infection in 2003. Twenty two cases were diagnosed as dengue using following methods.

We developed fluorogenic reverse transcriptase PCR (TaqMan RT-PCR) for detecting dengue virus type 1-4. Available sequencing data of E gene were aligned for designing primer and probe sets. The primer and probe sets were specific for respective dengue serotypes. Thirty-five sera from confirmed dengue patients were examined for the presence of dengue virus by TaqMan RT-PCR. Dengue virus genomes were detected in all the serum samples by TaqMan RT-PCR; however, some of the samples were negative by conventional RT-PCR. Dengue virus genomes were not detected in any of 7 serum samples from non-dengue patients.

Particle agglutination assay system was also developed for the detection of anti-dengue virus IgM by the collaborative study with Pentax. The system is used dengue virus antigen-coated, hydroxyapatite-coated nylon beads. The advantage is simple and not necessary any electric machine.

DF cases reported after enactment of Infectious Diseases Control Law (enacted in April, 1999) have numbered 159 in JAPAN. Dengue is an important infectious diseases in Japan

The Use of Rapid Diagnostic Tests in the Diagnosis and Management of Influenza

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Summary

Influenza is a highly contagious respiratory illness affecting about 10-20% of the population worldwide each year. This has many public health consequences including medical, social and economic. Accurate and timely diagnosis is important for initiating appropriate treatment. Influenza surveillance information and diagnostic testing can aid clinical judgements and help guide treatment decisions. Early diagnosis can reduce inappropriate use of antibiotics and provide options to use antiviral therapy. Diagnostic tests available for influenza include viral culture, serology, rapid antigen testing, polymerase chain reaction (PCR) and immunofluorescence. A number of rapid diagnostic tests are available to detect influenza viruses within a short period of time. Appropriate use of rapid diagnostic tests requires the integration of knowledge of the test performance characteristics with knowledge of key epidemiologic features of the influenza virus. While using rapid tests, clinicians should pay particular attention to the type of influenza viruses the test can detect and also the positive and negative predictive values. Details of these rapid diagnostic tests will be discussed during the presentation.

Rapid-Diagnostic-Tests (RDT) for Malaria

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Summary

Test performance of RDTs for Malaria has been assessed extensively in diverse clinical situations, in both endemic and non-endemic countries. The utility of these assessments has been compromised somewhat by variations in methodologies and commonly small sample size. The continuation of such assessments will be made necessary by the introduction of technically improved or newly developed kits.

RDTs variably detect the four Plasmodium species that infect humans, depending on the antigens on which they are based Some RDTs detect *P.falciparum* only, while others detect *P.falciparum* and the other malaria parasites on two separate bands. To date, no commercial RDT has been reported to differentiate reliably between *P.vivax, P.ovale* and *P.malariae*, although research to develop such a test is continuing.

The sensitivity of the RDTs has been most studied for *P.falciparum*. Compared with expert microscopy (sometimes complemented by the polymerase chain reaction), RDTs generally achieve a sensitivity of >90% in the detection of *P.falciparum* at densities above 100 parasites per µl blood Below the level of 100 parasites per µl blood, sensitivity decreases markedly.

The specificity of RDTs, measured in the same investigations, is uniformly high (mostly >90%). However, false positive results have been reported in blood from patients with rheumatoid factor, especially in an earlier version of one HRP-II kit. In addition, HRP-II tests can remain positive for 7–14 days following chemotherapy in a substantial proportion of individuals, even though these patients no longer have symptoms or parasitaemia.

The predictive values vary with parasite prevalence and are often found to be acceptable. The RDTs are uniformly reported to be easier to perform than all other malarial diagnostic techniques, with some RDT formats being found more user-friendly than others. Health workers with minimal skills can be trained in RDT techniques in periods varying from three hours to one day. However, studies showed that travellers need special training to perform the test successfully.

Travel Clinic in Japan

I Genka

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Summary

The number of Japanese citizens traveling abroad increased from 130,000 in 1964 to 17,820,000 in 2000. Despite a decrease following the US terror attack and the SARS epidemics, the number tends to be resumed during recent years. During the SARS epidemics, we learned the importance of collecting from reliable sources and distributing to travelers accurate and global information on infectious diseases.

Complied with the governmental policies, 4 travel clinics were newly established in national hospitals. As one of those, we, at the International Medical Center of Japan, opened a travel clinic in March 2003, and are expected to play a leading role in promoting further establishment of travel clinics throughout Japan.

At our clinic, we conduct, pre- and post-travel medical checkups, issue medical certificates for obtaining visas, and offer vaccinations, prophylactic medicines and pre-travel health advice. Among 1,250 clients during 2003, 58% visited our clinic merely to obtain medical certificates, mostly for visiting China, followed by 32% who visited for vaccinations. Those who sought pre-travel health advice accounted for only 2%. What we should do from now to improve our consultation include collecting information on infectious diseases at a real-time and global basis, and printing and distributing leaflets about important issues such as health problems associated with international travel and medical consultation abroad.

Our country is less advanced regarding malaria prevention in that we only have mefloquine as an approved chemoprophylactic medicine, and that the idea of chemoprophylaxis has not been accepted widely. In this context, the Japanese Guidelines for Malaria Prevention, which are being prepared voluntarily by a Japanese specialist group, may prove useful. Another serious issue is that several travel vaccines we use are manufactured domestically; therefore, data obtained using Western ones in the field of travel medicine cannot be applied directly to our situation.

We have just toed the line of travel clinic. We strongly would like to make effort for improving the quality of the service of our clinic

Travel Medicine Clinics in Singapore

H M L Oh

Changi General Hospital, Singapore

Summary

The main institution advising travellers on compulsory vaccines against smallpox, cholera and yellow fever in 1970s was the Government Vaccination Centre (GVC). The Infectious Diseases Regulation, 1982 stipulated the fees for the sale of any international certificate of vaccination by the (GVC). By 1990s, the GVC at the Institution of Health provided following travel-related vaccination, cholera, typhoid, yellow fever, tetanus, meningococcal and diphtheria/tetanus.

International Travel Clinic (ITC) was set up by the CDC, Singapore on 1.7.94. On 1.12.94, the GVC was merged with ITC to prevent duplication of services. When CDC merged with TTSH, the ITC was renamed the Travellers Health and Vaccination Centre (THVC) in 1995. THVC was officially opened on 4.5.98.

Changi General Hospital set up the Medical Centre for International Travellers in 1997 with the purpose of meeting the travel health needs of the population in Eastern Singapore. The Polyclinics in the 2 clusters started providing travel-related vaccination in 2001. The Polyclinics concentrated on providing pre-travel advice on vaccinations and malaria prophylaxis. NUH opened the Travel Screening and Vaccination Clinic in 2002.

Travel-Related Vaccination in Singapore Public Sector 2003

	TTSH	CGH	NUH
Total no of attendances	13163	1687	460
The no. of vaccines administered			
Influenza	6216	1076	257
Typhoid	3198	93	72
Cholera	-	104	-
Hepatitis A	1897	110	83
Meningococcal	1028	32	-

There is a need to provide a more comprehensive and readily accessible travel medicine service in Singapore.

Australia

R Kass

Travel Doctor (TMVC)

Summary

The number of international travellers is increasing annually; individuals are travelling for longer, to more exotic locations and many have pre-existing health problems. Occupational health and safety issues are high on the list of concerns for companies.

In the mid to late 1980s travel medicine in Australia was in its infancy. Travel clinics only existed in a few major cities with general practice providing very little in the way of vaccines and advice to travelers. Few doctors considered themselves as travel medicine specialists. There were many cynics as to whether it was a true medical discipline. Despite a pro-active stance by the Australian Federation of Travel Agents (AFTA) the vast majority of travel agents viewed any health related involvement as negative to the planning of an overseas trip, perhaps so negative they feared the traveller might even cancel their trip for fear of catching some exotic disease for which there was no cure. Travel medicine was certainly not viewed as a value-added component. Unfortunately at this time most practitioners still viewed health preparation as a couple of jabs namely cholera and typhoid and a few malaria tablets and this did very little to professionalise the discipline.

Much has changed over the last 15 years with the travel industry coming to terms with the diverse nature of travel and the need to develop niche travel activities. Through problems such as the plague in India in the mid-1990s, SARS and more recently the Avian influenza they now appreciate the need to work with health professionals to provide factual information to the travelling public. Accepting health as an integral part of travel has given them a value-added component to market themselves. Through the Smart Traveller campaign they can do likewise with security.

The medical profession has also embraced the discipline and the need to be current in travel health issues and new products. Apart from global health threats, issues such as DVT associated with travel, jet lag and altitude sickness need to be addressed in "risk situations". While there has been some change in the incidence of health concerns such as travellers diarrhoea and malaria to mention a couple there still remains an unacceptedly high level of morbidity in travelers overall.

With more and more doctors now providing a good standard of travel medicine at general practice level Travel Medicine Clinics in Australia and elsewhere must take on a different role. Travel clinics must set the benchmark for the practice of travel medicine and accept the role of a "specialized centre" for referrals and research. This area will be explored briefly as well as the role they must play in sifting information and determining fact from fiction, perceived versus real.

Travel Related Accidents

J Wilks

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Summary

The term 'accident' suggests that harm befalling travelers is largely unpredictable and unpreventable. However, there is now considerable evidence to show that most travel accidents, and their resulting injuries, can be anticipated and avoided if appropriate risk management strategies are systematically employed. This paper describes the main injuries experienced by travelers, using the 'snapshots' framework described by Wilks (2004) to cover fatalities; hospital inpatient admissions; outpatient treatments and general medical practice; and other health areas. While road crashes and water-related incidents remain the most common sources of travel related injury worldwide, the benefits of destination-specific monitoring are illustrated using new surveillance data on tourist injuries from Queensland, Australia. For example, compared to previous monitoring periods (1997-2000) figures from 2001 onwards show a different pattern of accidental tourist deaths in Queensland, with more recorded cases of intentional self-harm, poisoning, falls and fatal contact with animals. Within the broad transport category there are also more reported deaths involving aircraft and the use of watercraft. While English visitors to Queensland continue to be most frequently involved in accidental fatalities, monitoring reveals a shift in the relative involvement of other national groups. The discussion highlights the use of this strategic knowledge for the development of targeted accident prevention programs for travellers. Burden-of-care implications for local hospitals and health providers at tourist destinations are also considered.

Wilks J. Injuries and injury prevention. In: Keystone JS et al, eds. Travel Medicine. London: Mosby; 2004: 453-459.

High-Altitude Illness

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Nepal International Clinic

Summary

High-altitude illness is the collective term for acute mountain sickness (AMS), high-altitude cerebral oedema (HACE), and high-altitude pulmonary oedema (HAPE). The pathophysiology of these syndromes is not completely understood, although studies have substantially contributed to the current understanding of several areas. These areas include the role and potential mechanisms of brain swelling in AMS and HACE, mechanisms accounting for exaggerated pulmonary hypertension in HAPE, and the role of inflammation and alveolar-fluid clearance in HAPE. Only limited information is available about the genetic basis of high-altitude illness, and no clear associations between gene polymorphisms and susceptibility have been discovered. Gradual ascent will always be the best strategy for preventing high-altitude illness, although chemoprophylaxis may be useful in some situations. Despite investigation of other agents, acetazolamide remains the preferred drug for preventing AMS. The next few years are likely to see many advances in the understanding of the causes and management of high-altitude illness.

Flying After Diving: A Review

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Summary

Introduction

Most divers travel to and from diving locations by air. However, flying to a higher altitude after diving can predispose a diver to decompression sickness (DCS) unless there has been a sufficient surface interval to allow excess gas to diffuse out of the body. If insufficient time has been allowed and the ambient pressure is reduced, gas bubbles may form in the blood and body tissues, or existing asymptomatic bubbles may increase in size and cause symptoms of decompression illness. But how long is a sufficient pre-flight surface interval (PFSI)? Flying after diving guidelines dated from an Undersea and Hyperbaric Medical Society meeting in 1991. However, recent findings have challenged these UHMS guidelines. This review aims to compare the different recommendations and to look at their empirical basis.

Materials and Methods

A review of the literature was done on flying after diving, and a case series of 3 patients with DCS from flying after diving treated at the Department of Diving Medicine, Armed Forces Hospital Lumut.

Results and Discussion

The relative risk (RR) of DCS decreases as the PFSI increases. The RR decreases steeply at less than 12 hours and then gradually from 24 to 12 hours PFSI. The RR also increases as the maximum dive depth of the last day increases. Flying after diving also affects the severity of DCS. However, there were significant differences in the guidelines published by UHMS, Divers Alert Network (DAN), United States Navy (DAN) and various other diving agencies. The recent guidelines from DAN 2002 Flying after Diving Workshop have a better empirical basis and should be safer. For a single, no-decompression dive, a minimum PFSI of 12 hours is suggested. For multiple dives per day or multiple days of diving, a minimum PFSI of 18 hours is suggested. For dives requiring decompression stops, there is little experimental or published evidence on which to base a recommendation for a safe PFSI. In such instances, a PFSI substantially longer than 18 hours appears prudent. Flying after recompression therapy for DCS increases the risk of a recurrence even after several weeks after the dive. The incidence of residual symptoms after treatment was greater for divers that flew than divers that did not fly. Unlike flying after a dive, flying before a dive does not directly contribute to the development of DCS.

Conclusion

Flying after diving increases the risk and severity of DCS. This review suggests the use of a revised guideline and presents its empirical basis.

Typhoid Fever in Travellers

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Summary

Typhoid fever (TF) is a fecal-oral transmissible disease and therefore it is primarily a disease of overcrowded and unsanitary urban areas. It used to have a worldwide distribution including the Western world until early in the 20th century. Changes in sanitation and hygiene have been largely responsible for this dramatic decrease. Today, most typhoid infections occur in less developed countries where sanitary conditions remain poor and water supplies are not treated.

In developed countries there have been two major changes in the pattern of disease. One is a marked decline in incidence in the past half century and the other is that the disease has become predominantly a travel-associated disease. The risk for travelers appears to vary by geographic region visited and the Indian subcontinent has the higher rate of acquiring the disease.

Typhoid fever is a systemic infection caused by the bacterium Salmonella enterica which includes the serotypes S. typhi and S. paratyphi. Reports from endemic countries demonstrate that S. typhi is the dominant pathogen. However, amongst travelers the incidence of disease caused by Salmonella paratyphi may be more significant. The disproportionate number of cases of S. paratyphi in travelers may be due to a vaccine effect, which gives protection only for S. typhi. Our recent study showed that the clinical presentation and rate of complications and relapses were similar in S. typhi and S. paratyphi A infection in travelers.

Multi drug resistance (MDR) to TF is increasing dramatically in the last decade, thus currently, the recommendation for first line therapy is ceftriaxone 2 grams daily. Even with this drug the response is very slow and new antibiotics should be added to our arsenal.

The current vaccines available offer only moderate protection against S. typhi and no protection against S. paratyphi, which has become an important pathogen among travelers. With an increase in multi drug resistant strains, an effective vaccine for S. typhi and S. paratyphi is urgently needed.

Japanese Encephalitis

J Simon

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Summary

" Japanese encephalitis has been called a 'Plague of the Orient'. In Nepal it is called 'The Visitation of the Goddess of the Forest'. It is due to a flavivirus restricted to Asia where it causes 10,000 deaths annually. It extends from Guam and Saipan to Pakistan. Cases occur in SE Russia and have occurred in Australia in the Torres Strait and the Cape York Peninsula. Summer epidemics occur around Beijing. Outbreaks have been reported in Manila. It is hyperendemic in Northern Thailand. Four tourists to Bali have contracted the disease. The transmission season varies from country to country and depends upon the rains. At the peak of the transmission season the risk to travelers in endemic areas is estimated at 1 in 5,000 for a 4 week stay, although the overall risk is no more than 1 in a million.

Pigs and birds act as amplifier hosts. Humans and horses are 'dead-end' hosts. The vectors are Culicine mosquitoes cf. those breeding in rice fields and marshes. The major vector is Cx triteaniorhynchus. This has a flight range of up to 2k. Vectors can bite from late afternoon to 0400am. There are several strains of the virus but they appear to give cross-immunity. Prevention invovles (a) modern methods of pig rearing (b) vector control and (c) immunization. The incubation period ranges from 4-14 days. Most cases are inapparent or present as a mild febrile illness. For one case of encephalitis it is estimated there are 300 inapparent infections. In symptomatic cases encephalitis develops after 3-4 days of high swinging fever. In some it is manifest as an acute flaccid paralysis (AFP), mimicking polio, and accounts for 55% of cases of AFP in Vietnam. The peripheral blood usually shows a polymorph leucocytosis. The CSF is normal in 30% but usually shows a moderate lymphocytosis with a mildly increased protein. SPECT may show hypoperfusion in the thalamus, frontal cortex and lentiform areas.

Diagnosis may be made by PCR or IgM-capture ELISA on the CSF. A MAC DOT IgM assay on the peripheral blood is 95% sensitive. IgG appears after day 10 but there are many false positives due to cross reactions with other flaviviruses. Treatment is essentially supportive. The case fatality rate (CFR) varies from <10% with good intensive care to over 42%. Around 70% of survivors are neurologically impaired, and 32% have a decreased IQ. The following indicate a poor prognosis (a) a high CSF white cell count (b) a high serum TNF >50pg/ml (c) a high temperature. The very young and the old also have a poor prognosis. The mouse-brain derived vaccine is made in several countries including Japan and Korea. The vaccine is made using either the Beijing-1 strain or the Nakayama strain. There is no difference in protective efficacy. The 'Biken' vaccine manufactured by the Resarch Institute of Microbiology Osaka University is the vaccine most widely used. The manufacturers recommend two doses based on efficacy studies in Asians residing in endemic areas. Efficacy studies in Caucasians suggest that the correct schedule should involve three doses at days 0, 7-14 and 30. A single booster should be given every 3 years. 20% have local reactions and a further 15% mild systemic symptoms. Allergic reactions occur in 15-100/10,000. Serious reractions such as urticaria, angioedema and anaphylaxis occur in 2.6 /10,000. Vaccine associated encephalitis is rare and occurs 1-2.3/million.

Reactions can occur after any dose. Reactions can be delayed - up to 2 weeks in rare cases. The median time to a delayed reaction is shorter for the first dose than the second dose, which in turn occurs at a shorter interval than the third dose. It is generally not recommended for children aged <1 year because of the presence of protective maternal antibodies in endemic areas. It has however been given safely at age 4 months. The vaccine is recommended for (a) those traveling to rural areas for 4 weeks during the rainy season (b) those making repeated trips into an endemic area (c) those plannig to reside in an endemic country (d) those visiting an area at any time where there is a current epidemic (e) military personnel deployed to endemic areas and (f) children living in endemic areas. The decision to vaccinate or not represents a classic risk-benefit equation. The following should not be vaccinated: (a) hypersensitivity to neural or rodent proteins (b) thimerosal allergy (c) those with a previous adverse reaction to Japaenese encephalitis vaccine (d) those with a strong history of allergy. Recipients should not leave the clinic for 30 minutes after each vaccination. They should be warned about delayed reactions.

The cell culture derived live attenuated vaccine (SA-14-14-2) is made by the Chengdu Institute of Biological products. It is highly immunogenic with a protective efficacy of 99% in a large study in Nepal. There appear to be few adverse effects. There are concerns with a live attenuated vaccine with respect to recombination between a vaccine strain and wild-type virus resulting in a new virus with potentially undesirable properties.

Population Mobility in Southeast Asia and the Risk of STD Infection

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Summary

People travelling to southeast Asia is on the increase which includes large numbers from population in developed countries as well as people from the region itself. Spreading and contracting of sexually transmitted diseases (STDs) including human immunodeficiency virus (HIV) infection is one of the important aspects of travel which has attracted attention in recent years with the increasing incidence of HIV infection in the region. The opportunities for sexual exploitation of women, children and men in the region encourage a large proportion of sex travellers travel to or within the region. Establishments of various hospitality industries under the umbrella of beauty parlours, massage parlours, karaoke bars, restaurants or guest houses in some countries in the southeast Asia region including Thailand, Cambodia, Myanmar, Vietnam, Philippines and southern China encourage people to chose these as a sex holiday destinations.

A study was conducted among 4,157 people from different population groups (airport travellers, business sector workers, service sector workers, university staff, and social hygiene clinic (SHC) attendees) in Hong Kong about travel health risks including sexual behaviour. From the 2,060 who completed the questionnaire, we identified a total of 1,378 respondents who were aged 18-65 years and had made at least one trip overseas during the previous year. Sex with strangers (local person, fellow travellers, or commercial sex workers) during their previous journey was common among patients attending SHC (55%; 96/173), travellers in the airport departure lounge (45%; 167/375), service sector (11%; 24/226), university staff (7%; 17/234), and business sector (6%; 19/339) respondents. Males were significantly more likely to have had travel sex than females except among airport and business sector travellers. Among the travellers (n=1,378), reported consistent condom use during sexual contact was lower than 10% overall [business sector: 8% (26/313); service sector: 5% (8/158); airport travellers: 4% (13/360); university staff: 3% (6/207)] except for SHC respondents, of whom 55% (93/170) reported using condoms consistently.

Besides sex travellers, travellers those who are not travelling with the intention of sexual exploitation may also prone to involve in such activities due to the accessibility, attractive promotional package of the services together with the affordability of travellers. All of these carry a potential risks of STDs to travellers themselves, their spouses or partners and to those vulnerable people who provide services to them. Effective interventions are urgently needed to reduce the sexual health hazards related to travel in the southeast Asia region.

Selected Health Risks Among Foreign Aid Volunteers in Calcutta, India

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Summary

Introduction

Preliminary surveys have identified foreign aid volunteers as high-risk travellers, but no data exist on specific incidence rates or on vaccine coverage for India.

Materials and Methods

Volunteers of ≥18 years (n=551) were enrolled in a prospective cohort study between December 2000 and May 2002 in the Calcutta area. Questionnaires inquiring the previous history of infectious diseases, vaccinations and illness during the stay abroad were collected within 3 weeks after arrival, prior to departure, and 3 months after leaving Calcutta. Paired arrival and departure sera specimens were tested for dengue fever, Japanese encephalitis, hepatitis A, B, C, and E while stool specimens were analyzed for Amoebiasis, Giardiasis, *Cyclospora* and *Blastocystis hominis*.

Results

Seroprevalence and pathogens detected in stool specimens (N=439).

Pathogen / infection	Positive at arrival n (%) follow-up positive)	Conversion, n (%) (arrival negative, n (%)	Protection by pos. serology
Dengue fever	105 (2.3)	26 (0.5)	-
Japanese encephalitis[1]	0	26 (0.5)	24 (5.5)
Hepatitis A[2]	375 (85.4)	307 (6.8)	375 (85.4)
Hepatitis B	18 (0.2)	199 (4.3)	308 (70.2)
Hepatitis C[3]	2 (0.5)	0	-

Hepatitis E[4]	1 (0.2)	1 (0.2), 2 borderline	-
Travellers diarrhea:			
Giardia lamblia	15 (3.4)	20 (4.6)	-
Entamoeba histolytica/ E. dispar-type	17 (3.9)	7 (1.6)	-
Cyclospora	1 (0.2)	1 (0.2)	-
Blastocystis hominis	166 (37.8)	28 (6.4)	-

[1] Positive if total Ig > 80 IU/ml.

[2] Tested for IgM/IgG.

[3] Screening and confirmatory tests for total Ig/IgG.

[4] Screening and confirmatory tests for IgM.

[5] Check for crossreactions due to post-vaccination antibodies against other flaviviridae (e.g. yellow fever, Japanese encephalitis,

tickborne encephalitis) was done if vaccination cards were available.

[6] Crossreaction, possibly seroconversion following vaccination against japanese encephalitis.

[7] Only one clinically apparent hepatitis infection, others classified as late seroconversions following vaccination.

[8] Tested for anti-HBc-IgM.

[9] Tested for anti-HBs-Ig, classified as late seroconversions following vaccination.

Conclusion

Data suggest that foreign aid volunteer remain at risk, especially of vaccine-preventable hepatitis B infections and of diarrheal illness requiring specific therapy.

Diagnosis of Febrile Illnesses in Returned Travellers Using the PC Software GIDEON

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Summary

Objectives

The prompt and accurate diagnosis of febrile illnesses should have the highest priority when dealing with returned travelers. However, traditional diagnostic procedures aided by collecting information from printed materials may have drawbacks. Here, we conducted a retrospective study to evaluate the diagnostic capability of the software, Global Infectious Diseases and Epidemiology Network (GIDEON).

Materials and Methods

We recruited a total of 92 febrile travelers in whom an infectious disease diagnosis had been confirmed by microbiology and/or serology. The presence or absence of symptoms/signs and laboratory abnormalities, travel destination, entry and departure dates, and the date of onset were input into updated versions of GIDEON.

Results

Overall, the correct diagnoses appeared on the differential diagnosis lists for 90% of the cases and ranked first for 51%. A correct diagnosis was excluded from the differential diagnostic list by the presence of symptoms and signs irrelevant to the disease, which was demonstrated most clearly in a case of Lassa fever. We also found that a correct diagnosis can be listed lower than expected, probably due to the irrelevant database.

Conclusion

Improvements are required at the level of the developer and users are required to have adequate knowledge of infectious diseases for best use of the program. Despite these limitations, we believe that GIDEON is a novel and potentially powerful tool in infectious disease diagnosis.

Isolation of Classical Vibrio Cholerae from Kufa River of Euphrates, Iraq

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Summary

Introduction

The human pathogenic vibrios are naturally occurring in aquatic environment of Iraq in which classical biotype of cholera is not reported. The microbial ecology of this biotype becomes of importance because it may significantly predict the occurrence of epidemics. The classical biotype of cholera had been disappeared during the last pandemic and reappeared in Bangladesh during the current seventh pandemic. The isolated Vibrio during epidemics of 1966, 1998 and 1999 were El-Tor biotype.

Objective

The study is an attempt to differentiate the isolated Vibrio, and to verify whether classical *Vibrio cholerae* might be a risk for future epidemics of this unusual pathogen.

Study design

Epidemiological investigation for cholera source of infection through standard laboratory examination (a descriptive study).

Materials and Methods

Thirty samples of water were taken every fortnight from three sight sites of Kufa river (half of Euphrates, middle of Iraq) in Najaf governorate during the period between 30th June to 1st November 2003, the time at which cholera epidemic is expected. The samples were transferred and inoculated for culture according to WHO guide of *Vibrio cholerae* isolation and classification.

Results

In Al-Zerga part of the river (before the city of Kufa), 12 of 20 samples were positive for El-Tor vibrios and no classical one was isolated in this area. In bathing ghats of the river, entire the city 23 samples were positive ;18 samples El-Tor and 5 samples were classical biotypes. While at the estuaries of raw sewage beyond the city, 27 of 37 samples were positive for El-Tor and 7 samples were positive for classical pathogen.

Conclusion

Classical cholera is endemic in the aquatic environment of this locality, not only El-Tor, which make it imperative to identify the geographic location where the ecological conditions are favorable for toxigenic *V. cholerae* group O1 classical biotype.

Situation of Infectious Diseases of Western Mongolia

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Summary

Objectives

Main objective of this study is to detect and investigate agents of plague, SARS, Tularemia and western Nil infection in the some region of western Mongolia.

Materials and Methods

We carried out this study by using a methology of field investigation, immunoferment analysis and polimerase chain reaction.

Results

In September, 2003 we collected over 1000 samples from some regions of western Mongolia, such as Bugat, Tolbo, Nogoonnuur, UlaanKhus, Sagsai sums of Bayan-Ulgii aimag; Erdeneburen, Buyant, Myangad sums of Khovd aimag; Ulgii, Khovd, Umnugobi sums of Uvs aimag. Collection of samples include 52 rodents and lagomorphs (9 species), 42 birds (18 species) and they were tested by immunoferment analysis and polimerase chain reaction to detect agents of plague, western Nil infection and SARS.

In the result of this study, we detected virus of western Nil infection from 2 rodents and 3 birds and virus of influenza from 18 birds. Strains of *Y.pestis. ulgeica* were isolated from 5 rodents. There were also recorded antigen of *Y.pestis* and antibody against *Y.pestis* in the blood of 4 rodents and 6 birds. We determined species of 1500 mosquitoes, collected from Buyant sum, Khovd aimag and they were species of Aedes dorsalis. There were no agents of infectious diseases from flies and ticks.

Conclusion

There were detected firstly influenza virus from 10 species of birds in the 8 places and virus of Nil infection from 1 species of rodent and 2 species of birds in the 3 places of Mongolia.

Rabies Epidemiological Study in Kurau, District of Bengkalis, Riau Province, Indonesia

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Summary

Rabies epidemiological study was conducted in Kurau and its surrounding areas where oil drilling concessions operated by Kondur Petroleum company. Business workers related to the oil drilling activities become increased in number brought by ships and air planes to and out of the areas while Kurau is a part of Bengkalis district where two out of 12 its sub districts are located in the mainland of Sumatera, rabies endemic area. There were estimated about 550 dogs in Kurau and its another three surrounding areas of Sagu-sagu, Mengkikip and Melibur. About 99% of these dogs were roaming around freely with no control by the owners. Of 108 corneal and 108 oral swab specimens, by using sterile cotton- sticks, were collected from 70 dogs, 37 cats and one monkey. All specimens after diluted with sterile physiological saline mixed with Kanamycin were inoculeted into 524 white mice brains and found no positive of rabies. Seaport quarantine activities were observed and the meeting with Animal Quarantine together with Bengkalis District Veterinary Officers were performed. The main issues about animal rabies transmitter were discussed and reminded the law that strictly prohibited to bring dog, cat and monkeyinto the islands of Riau including into Kurau area located in Malacca strait from anywhere including from two sub- districts belong to Bengkalis district that located in Sumatra mainland. It is concluded that untill now on, all island in Malacca strait and all islands belong to the Riau Island province are free from rabies. To maintain that rabies. To maintain that rabies free status, by rabies regulation, it is not allowed to bring dog, cat and monkey into all above islands.

Key Words: Animal quarrantine, and Rabies regulation.

Health Tourism: What Can Asian Tourist Expect When Visit KRKA Spa in Slovenia?

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Summary

Aim

The aim of workshop and excursion to KRKA spa for Asian general practitioners who attended WONCA conference in Slovenia is the presentation of balneotherapy and health tourism in Slovenia.

Materials and Methods

Oral presentation and excursion to KRKA spa. The participants have been presented the questionnaire which was given to Asian travellers who arrived at Ljubljana airport. With this questionnaire we wanted to learn if the Asian travellers know anything about health resorts in Slovenia and if they visit spas in the countries they are coming from.

Objective

The use of thermal spring water for therapeutic purposes in Slovenia has been known since ancient times. The modern spa medicine is characterized by the application of scientific method based on evidence medicine. Mission of Slovenian spas is through their health activities rehabilitation, prevention and promotion of health) improving health of patients and tourists from Slovenia and abroad.

Conclusion

Spa facilities in Slovenia usually provide excellent conditions for performing preventive health care programmes (Wellness). So also the colleagues from far away countries should be aware of medical and touristic possibilities of these resorts. They can advise correctly their patients and friends about visiting spas in Slovenia.

Risk of Parasitic Diseases for Visitors of Iran

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Summary

Iran, with a population of 70 millions, lies between the Middle East and Asia. It is an ancient country, having a lot of interesting historical monuments and attractive sightseeings for thousands of tourists, so it is important to sketch a bird's eye view report of potential hazards facing travelers. Some important parasitic diseases for visitors here are malaria, fasciolosis, hydatid disease, leishmaniosis, amoebiasis, giardiosis and so on. Visitors must be careful of local dishes in the north, endemic for fasciolosis, such as Dalar (a kind of salad) and Zeitoone Parvardeh (preserved olive), because of probably having metacercaria causing fasciolosis.

Malaria is endemic in provinces of Hormozgan, Kerman and Sistan and Baluchestan. Administration of chloroquine plus proguanil in ***Plasmodium falciparum*** risk areas and chloroquine in ***P.vivax*** ones are recommended. Sandflies, agents of different kinds of leishmaniosis are present in many parts. Use of DEET containing mosquito repellant is recommended to minimize the risk of bites. Ardabil and Fars provinces are endemic for visceral leishmaniosis. Shistosomiasis, formerly endemic in Khuzestan province, no longer has risk for visitors. In the last two years no human cases have been reported, but swimming in some rivers may cause the larvae of some parasites to penetrate the skin and cause skin dermatitis. Most of the dogs are infected with ***Echinococcos granulosos***, so playing with them must be avoided. Hydatidosis may be transferred via eating contaminated vegetables and juice of carrot in some stores.

Triple Approach for Preterm Labor Complicating Traveller's Diarrhoea

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Summary

Background and Target of the Work

Infection and activated inflammatory mediators (both common to traveler's diarrhea) are risk factors for preterm labor. The work aimed at assessing ***a triple approach*** for preterm labor complicating traveler's diarrhea: CoxII inhibitor, ***Lactobacillus acidophilus***, and intravaginal crude honey.

Materials and Methods

105 pregnant women, suffering from traveler's diarrhea and threatening preterm labor were studied. They fulfilled the following criteria: 1) between 26 and 34 weeks' gestation, 2) singleton pregnancy, 3) intact membranes, 4) no fever, 5) uterine cervix <1 finger dilated.

The women were *randomly allocated* to either:
(TAG:Triple Approach Group) received a combination of oral 25 mg roficoxib b.d.s, ***Lactobacillus acidophilus*** (capsules of five billion lyophilized killed microbes; as 1 ***orally*** and 1 ***vaginally***, twice daily), and 5 ml of crude Egyptian bee honey intravaginally/12 hours, in adition to the conventional treatment, OR, *(CTG:conventional treatment group)* used only tocolysis and antibiotic therapy. Either regimen was continued till either the PL contraction finish OR labor starts.

Results

	TAG	CTG	P
Number of cases	53	52	
The average PL threat-delivery (DAYS)	51	29.3	<0.05%
Delivered < 34 weeks	4 (7.5%)	16(31.4%)	<0.01%
Delivered > 37 weeks	37(70%)	19(36.5%)	<0.01%
PROM	4 (7.5%)	9(17.3%)	<0.01%
Fever	1(2%)	1 (2%)	ns
Neonatal septicemia	3(5.7%)	9(17.3%)	<0.01%

Conclusion

Triple approach is an effective regimen for preterm labor complicating traveler's diarrhea.

Slowing Down in the Decline of Malaria Cases in Malaysia: Effect of Drug Resistance?

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Summary

Malaysia has shown significant and progressive success in controlling malaria as a major public health problem. Since the Malaria Eradication Programme in 1960's, the number of cases continue to decline from >100,000 cases annually to below 50,000 in mid 1990's. However, the decline is slowing down and the number of cases has been stabilizing at around 10,000 cases over the last 5 years, despite increasing insecticide-treated bed-net coverage and maintenance of residual insecticide spraying and high annual blood examination rate. Drug resistance surveillance activities are showing evidence of increasing drug resistance pattern of *P. falciparum* to anti-malarial drugs. In-vitro sensitivity pattern showed 90%, 10% and 15% resistance to chloroquine, quinine and mefloquine respectively. Restriction enzyme analysis showed widespread point mutations in the DHPS and DHFR genes. National Surveillance Programme of In-Vivo Drug Response was launched in January, 2003. Seventeen sentinel sites were selected representing malaria endemic areas. Uncomplicated falciparum malaria cases were recruited and treated with first line drugs according to the region (Peninsular, Sarawak and Sabah) and clinical and parasitological response monitored weekly until D28 according to WHO protocol. Out of the 197 cases completed the follow-up, 35.5% showed treatment failure, 50% of which were early treatment failures. Rate of treatment failure was 45.2%, 16.7% and 31.3% to chloroquine alone, SP alone and combination of chloroquine and SP respectively.

The Prevalence of Heat-Stable Enterotoxin Secreting Enterobacteriaceae Isolated from Food Samples in Tehran

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Summary

Objectives

Travellers diarrhea is the major cause of morbidity in developing countries. One of the leading causes of food-borne intoxications are the various enterotoxins which are elaborated by different members of Enterobacteriaceae. Of these, the heat-stable enterotoxins the most prominant. Diverse testing systems such as ELISA, gene probe and amplification assays, and the classic suckling mouse assay are used to assess enterotoxin production in both clinical samples as well as in foods.

Materials and Methods

In this survey, a total of 1860 different food samples which included dairy products, fruit juices, ice creams, sweats, and different meat products were cultured for contaminating bacteria. A total of 300 bacteria belonging to Enterobacteriaceae family and previously reported to have the ability to secrete enterotoxins were selected. Suckling mouse assay in infant mice were used to check the isolated bacteria for enterotoxin production.

Results

Among the 300 screened E.coli , Enterobacter, Citrobacter, and Klebsiella isolates; 21 strains were shown to be positive for enterotoxin production. Most of the enterotoxigenic bacteria were cultured from dairy products (42% of the total cases) and in terms of seasonal prevalence, summer months were the most prevalent.

Conclusion

The results points to a clear involvement of enterotoxigenic bacterial populations in the etiology of food-borne human diarrhea in Iran. It also argues for the necessity of a stronger food inspection system.

Integrated Strategy to Control Malaria in India

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Summary

Malaria is a major threat to mankind and is greatly hampering socio-economic development in tropical and subtropical countries. As per WHO estimates about 300-500 million cases and about 1.5-2.7 million deaths are recorded annually in about 100 countries. In South East Asian region, about 26 million cases alongwith 27490 deaths are observed annually, India alone records 2-3 million cases annually, which are grossly underestimated due to inadequate and poor surveillance and difficulties in diagnosis. The global strategy of malaria control did not provide adequate dent due to development of insecticide and drug resistance in vector mosquitoes and malaria parasite respectively. In absence of an effective vaccine vector control is the only available effective option to curtail or interrupt the transmission. The strategy of indoor residual spraying or antilarval chemical based measures has gained such a spectacular success during DDT era that malaria eradication programme was launched globally. Later the strategy proved counter productive due to inherited problems like resistance cross resistance, sustainability high unaffordable recurring cost, inadequate coverage, collateral benefits and above all chemical pollution to food chain and environment. In view of this efforts were directed to develop ecofriendly sustainable cost effective integrated vector control strategy to reduce our reliance on pesticides. The operational feasibility and efficacy of this strategy in different ecosystems in India will be presented and discussed.

The Prevalence of Tuberculosis in Afghan Refugees Camps in Iran (1999)

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Summary

Objectives

In 1993, WHO declared tuberculosis as a global emergency. Living in the refugee camps normally is accompanied by malnutrition, illiteracy, stress, crowding and may lead to a high prevalence of tuberculosis. This study designed to determine pulmonary tuberculosis rate between Afghan refugees in Semnan (Iran).

Materials and Methods

All > 15 years Afghan refugees in Semnan camp were questioned and examined (respectively) by completing of a questionnaire, and taking of sputum for 3 consecutive days and chest x-ray. After identification of patients with positive smear, smear negative patients with clinical signs of tuberculosis investigated further by acid fast bacilli culture and, few cases by broncho-alveolar lavage (BAL).

Results

In this study 16 out of 897 Afghan were found to have pulmonary TB, (8 were smear- positive and the rest proved to have TB by other diagnostic tests). The prevalence rate of TB was (800 / 100.000 population) and (400/100.000 population) for the whole study population and smear-positive patients respectively. According to data from Ministry of Health of Iran pulmonary TB prevalence in Iran was (25.7 / 100.000 population) for smear-positive and negative patients in 1999.

Conclusion

The finding demonstrated a very high prevalence rate of TB among Afghans, and indicated a dreadful picture of a dangerous disease among them. Although, the prevalence rate of TB between two countries differs significantly, but the whole population of both countries face with many problems for controlling of this reemerging and injurious disease.

Frequency of Human Cases of Plague in Mongolia and Classification and Distribution Territory

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Summary

In world have been registered plague to 24 countries, especially to 7 countries always registered. Examples:

Africa	Asia	America
Tanzania	People's of Republic of Mongolia	Peru
Madagascara	People's of Republic of China	USA
	Vietnam	

Objective

We trying the human cases of plague occurred what how many percent and how many square were registered in total territory of Mongolia.

Materials and Methods

We used some archives materials such as report on of history human disease of plague and examination of natural foci controlling under the Institutes of Infectious Disease with Natural Foci from 1948 to 2003, history of infectious diseases in the People's Republic of Mongolia and museum materials about the plague bacteria and referred Mongolian map to numerical form as Digitizer applying computer program ARC/INFO of Geographic information and settled limit of each square by program ARC/INFO.

We made statistic elaboration on Natural Foci of plague and human disease using "Genetic" program and collecting epizootic lifespan from the materials of 107 sums, where were human disease of a plague in the period of 1948-2003.

Results

Nowadays in area 79.2% i.e. 1240.6 km2 of all territories hot registered human plague cases (1948-2003). The square with human plague cases occurred 20.8% i.e. 325.8 km square.

Table I

	Total km square	Percentage	
	1240,6	79,2	
Seldom	236,5	15,1	
Some time	78,3	5,0	20,8
Often	7,8	0,5	
Always	1,1	0,2	
Total	1566,5	100	

Figure 1. Percent of square which have human plague cases

In 1941-1950 regustered on the average 18.4 cases and 96.2% death, 1991-2000 registered 8 human plague and 43.7% death in year. Then decreasead on the average years cases 2.3; death 2.2 times. It is referring good organized measures of vaccination, hunt marmot and other prevent care. In Mongolia rate fatality of human case of plague 5.2 times high in the world level. These situation influenced followig reasons:

- population located by disperse
- medical aid remote
- not to immediately reach to hospital
- to cure peron himself, reach difficulty and died.

Conclusion

Nowadays in area 79.2% i.e. 1240.6 km2 of all territories hot registered human plague cases. The square with human plague cases occurred 20.8% i.e. 325.8 km square. For investigation certified 79.2% i.e. 1240.6 km2 area hot registered any human plague cases and 28.3% i.e. 443.3 km square have human plague cases.

Correlation Between Parasite Densities and Intensities of Visible Lines of the Immunochromatographic Test or Copy Numbers from a Real-Time PCR Assay

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Summary

The objective of this study was to compare Now® ICT Malaria Test and a real-time PCR assay to expert microscopy for the determination of parasite densities in 50 *Plasmodium falciparum* and 50 P. vivax malaria patients.

Quantitative analysis was conducted by the ICT test, reading the intensities of positive lines in the test window subjectively by 4 grades (from 0: negative, 1: weak, 2: moderate, to 3: intense). Plotting the readings by 4 grades against the grade of parasite densities (< 100, 100-1000, 1000-10000 and >10000 pRBCs/μl), high correlations between the two groups were recognized. That is, Pearson's correlation coefficient (CC) was 0.642 between intensities of T1 lines and parasite densities in *P.falciparum* patients. For P. vivax patients, CC between intensities of T2 lines and parasite densities was 0.745. Likewise, we examined correlation between copy numbers of *Plasmodium* rRNA gene obtained by the PCR and parasite densities, and CC was 0.808 for *P.falciparum* and 0.586 for *P. vivax*.

The ICT test and the real-time PCR may represent a useful adjunct not only for the diagnosis of the species of malaria but also for determination of parasite densities in evaluating severity of the patients. Yuko Katakai, Rachatawan Chiabchalard, Kanako Komaki-Yasuda, Shin-ichiro Kawazu, Pratap Singhasivanon, Srivicha Krudsood, Somchai Looareesuwan, and Shigeyuki Kano Research Institute, International Medical Center of Japan, Tokyo, Japan; Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand.

New Antimalarial Drug Development Research in Japan

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Summary

Objectives

In 1996, the Ministry of Education, Science, Culture and Sports (Japan) began the funding of research on Priority Areas titled "Molecular Basis of Malaria Control". The research project involves scientists from numerous research fields, and has already contributed greatly to the research of malaria by developing new antimalarial agents. As a part of multidisciplinary research programs on antimalarial agents, we are screening 5,000 samples containing natural products, organic compounds, microorganism-derived products, combinatorial compounds and marine products that are alleged to have antimalarial activity.

Materials and Methods

Antimalarial activities against *P. falciparum* and cytotoxicities against FM3A cell of samples were examined. The in vivo antimalarial activity against *P. berghei* NK 65 strain in the 4-day suppressive method was also determined.

Results and Conclusions

As the results, several compounds (such as Endoperoxides and Johzan natural products) with high selective antimalarial activity were obtained using in vitro and in vivo. We will also present our results of the antimalarial project for 4 years in Japan. Malaria has been eradicated from Japan, but Japan is now in the position of being able to contribute to the prevention of malaria.

Detection of Anti-Dengue Virus IGM by a Particle Agglutination Assay System Using Hydroxyapatite-Coated Nylon Beads

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Summary

Objectives

A particle agglutination (PA) assay system was developed using dengue virus antigen-coated, hydroxyapatite-coated nylon (Ha-Ny) beads, and evaluated for the detection of anti-dengue virus IgM.

Materials and Methods

Human serum samples were serially 2-fold diluted from 1:100 to 1:12800 on a microplate coated with anti-human IgM. The microplate was incubated for 30 minutes at room temperature. After washing the microplate, Ha-Ny beads coated with a mixture of 4 serotypes of dengue virus antigens were added to the microplate. The microplate was settled for 1 hour at room temperature. The virus antigen-coated Ha-Ny beads can bind to anti-dengue virus specific IgM on the microplate. The Ha-Ny beads adhered to the wall of wells when samples were IgM-positive. The beads formed a dot pattern when the sample was negative. Ninety-three serum samples from imported dengue cases in Japan and 200 serum samples including dengue secondary infection cases in Philippines were tested by the PA assay and conventional IgM-capture ELISA.

Results

The titers in PA assay were correlated with those in IgM-capture ELISA. In comparison with IgM-capture ELISA, PA assay showed 90% in sensitivity, 100% in specificity and 93% in compatibility using serum samples from Japanese cases. It also showed 97% in sensitivity, 91% in specificity and 96% in compatibility from Philippines cases.

Conclusion

Anti-dengue virus IgM detection PA assay system shows high compatibility with IgM-capture ELISA. This assay system does not require special equipment or facilities. This assay will be especially useful for serodiagnosis of dengue in the rural areas in Asia.
stores.

Epidemiological Study of Japanese Encephalitis Among Tegal Parang Village Population, Mampang Sub-District, Jakarta Metropolisa

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Summary

Japanese encephalitis (JE) epidemiological study was conducted in Tegal Parang villages, Sub- District of Mampang, Jakarta Metropolis. This study was designed as Cross sectional study with Hospital base. Participants were selected from patients in South Jakarta Hospital, which recorded during the period of the last one week to two months, with the symptom of high fever, headache, and meningeal signs. These selected participants then were visited to their residences to collect their serum specimens, examined their health and observed environment where they lived and collected JE larval vector mosquitoes for species determination. Due to the complicated written addresses, only 26 serum specimens that collected from 37 selected patients. There were 19 (73.08%) out of 26 sera that found positives of antibody against JE by HI test. The highest number that positive of antibody was 22-60 year age group with 14(93.33%) out of 26 examined sera, while among >60 year age was found no positives of antibody against JE. There were 3(15.79%) out of 26 sera that positive of antibody against JE with each titer of 1:160 and 1:40. Of 9(47.37%) sera were positives of antibody with the titer of 1:20 while another 4(21.05%) sera were found positive with the titer of 1:40. Cattle, chicken and goats were the predominant animals owned by the villagers. Drainage system didn't work property and some stagnant water can be found in some places. Of 973 mosquito's larva were collected from 33 breeding places. During three days period about 119 developed become adult where 80 mosquitoes were female and 39 were male and all of these were *Culex fatigans.*

Key Words: JE, Animals, Culex fatigans

Malarone for Malaria Prophylaxis: Who are the Candidates?

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Summary

Background

Malaria prophylaxis has been an issue for travelers top infested areas. Compliance, development of resistance and side effects are important. The introduction of Malarone has opened now opportunities. However, the high cost and the need for daily doses is a disadvantage. Currently, Malarone is almost 7X20% more expensive than Mefloquine, making this new drug practical only for a segment of the travelers.

Materials and Methods

This chart of 986 consecutives clients who came to the clinic in 2003 were reviewed retrospectively. Their demographic data, the destination and the duration of their trip were noted. Notes on recommended malaria prophylaxis were analyzed, and the possibility of using Malarone was assessed.

Results

Only 270 (29.1%) of the travelers did not need malaria prophylaxis. Of the 658 travelers with prophylaxis, 287(31%) could benefit from choosing Malarone. The demographic data for this group shows that the option of Malarone is feasible for travelers to South Amaerika (180/244, 74%), because exposure is brief, and includes the Amazon basin only. For the popular destination of short trips to Thailand prophylaxis is recommended only when the travelers includes rural travel in the north of the country. This will enable 87% of travelers to this destination to use Malarone. Older travelers and short trips are more frequently associated with Malarone recommendation.

Conclusion

Malarone is an option for malaria prophylaxis for short trips to infested areas. Most young travelers will prefer this mode of prevention due to fewer side effects, however, the high price Malarone still prevent its widespread use.

Malaria Among Japanese Diplomats Dispatched to Africa and the Asia-Pacific Region

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Summary

Objectives

To assess malaria risk in expatriates residing in the urban areas of developing countries.

Background and Methods

Ministry of foreign affairs of Japan is currently dispatching medical doctors to 74, mostly developing, countries. The task of them is primarily to care for Japanese diplomats and their families in the area. We have attempted to assess malaria risk in that population by looking at the data recorded in their monthly reports.

Results

Between April 1999 and March 2004, there have been 486 malaria reports (B50 to 54 in ICD-10) out of total 174132 reports. Among 486 malaria reports, 451 (92.8%) have been reported from Africa, along with 16 (3.3%) from Asia, 11 (2.3%) from Papua New Guinea (PNG), while no reports from the Americas. When numbers of malaria reports are divided by numbers of persons under their care to assess malaria risks, Central African Republic gives the highest figure (1.62 report/person/year). Cameroon and Ghana are second highest, 0.513 and 0.464, respectively. In the Asia-Pacific region, PNG gives the highest number of 0.09, that is well below most African countries.

Conclusion

Malaria risk remains high among expatriates in African countries, despite living in the urban environment, while the figures are much lower for Asian countries.

Molecular Characteristics and Specificity of Salmonella Typhi from Different Geographic Regions in Indonesia Using Pulsed-Field Gel Electrophoresis

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Summary

Genetic diversity among *Salmonella typhi (S.typhi)* from different geographic regions in Indonesia was studied using pulsed- field gel electrophoresis (PFGE). Genomic DNA of thirty three *S. typhi* isolates from sporadic cases of typhoid fever during 1998-2000 in Jakarta, Pontianak, Makasar, Jayapura and Medan, were digested with restriction endonuclease enzim Spel and electrophoresed. The results showed restriction endonuclease patterns consisting of 12-23 DNA fragments ranging in size from 29- 1113 kbp, with genomc size of *S. typhi* between 1495- 4516 kbp.

Analysis of the restriction endonuclease fragments showed at least 22 different REA patterns which generated 20 different pulsotypes with 12 subtypes. These isolates were highly heterogeneous in that the Dice coefficient were 0.000-0.971. Cluster analysis showed that all *S. typhi* isolates originated from 2 main clusters. Further, at cut- off value of 80%, 4 clusters were found. Three of the clusters seemed to be characteristics to each of the areas as followed: Jakrta, Pontianak, and Jayapura clusters. While, one cluster contained isolates from different areas, i.e. Makasar, Jakarta, Jayapura.

Thus, *S. typhi* isolates within each cluster showed close relationship, however clusters from different areas apparently shared less common characteristics to one another.

Imported Dengue Fever Cases in Japan

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Summary

Every dengue fever (DF) cases reported during last five years in Japan had recent travel history. However, concern is raised to the possibility of indigenous DF epidemic, based on the experience of past epidemic in western Japan in which ***Aedes albopictus*** inhabiting proved its capability of transmitting the disease.

Recent increase of travellers to tropical and subtropical areas urges a DF surveillance with high accuracy to monitor disease trend. The analysis was carried out on the data collected under the enacted "the Law Concerning the Prevention of Infectious Diseases and Medical Care for Patients of Infections" to give descriptive epidemiology of the cases and to evaluate the efficiency of the reporting system.

During five years from April 1999, 167 DF cases has been reported and all had history of travelling abroad shortly before their onset of the disease. Eight out of reported DF cases were dengue haemorrhagic fever (DHF). Males dominated by 63.5% and 75% of DF and DHF, respectively. The age distribution centred on young adults, with people whom 20 to 49 years of age accounting more than 85%. Seasonal peaks were observed in spring and summer, though the influence of epidemic in Thailand in 2001 and the travel restriction from severe acute respiratory syndrome outbreak in 2003 was observed. Thailand, Indonesia, Philippines and other Asian countries were common destination of the pre-diseased travel, and where infection was suspected.

The cities with larger population with/without airport and seaport in reachable distance reported more cases. The reconciliation of the case reporting and the information from the laboratory revealed possible underreporting of DF cases.

To prevent indigenous transmission DF epidemic, increasing numbers of alerted clinicians, strengthening clinical, laboratory, and public health collaboration, and the real-time provision of the collated and analysed surveillance data are essential.

The Incidence of Visceral Leishmaniasis in Ahvaz During 1999-2001

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Summary

Objective

Leishmaniasis is a parasitic disease transmitted by the bite of some species of sand flies.The disease most commonly manifests either in a cutaneous form or in a visceral form. In recent years, incidence of visceral form (Kala-azar)has increased in some countries of Tropical Asia so, we studied it in Ahvaz that has a warmer climate.

Materials and Methods

All pathology reports about bone marrow(BM) submitted to the department of pathology at the university hospitals in Ahvaz from 1999 to 2001 were reviewed and all cases that were Kala-azar were selected and the following points were determined and studied: sex and age, clinical information, season and place of disease.

Result

3476 BM were reviewed, of which 34 were Kala-azar. 22 cases were male and 12 were female. Ten cases were 1-2 years and 14 cases were ¡Ü1 and ¡_2 years. Fifteen cases had a long fever and all cases had hepatospelenomegaly. Ten cases were in the summer of 2001 and 13 cases were living in the rural areas. 31 cases had a good treatment and only one case died.

Conclusion

Among the patients with clinical treated, the male/ female ratio was 1.8 which may indicate they did someworks outdoors at night, so they had a high risk for biting a sand fly. The most patients were children, suggesting that the highest risk of become clinically ill was among children and Leishmaniasis usually was more common in rural than urban areas. Therefore, travelers of all ages (especially children) are at risk for Leishmaniasis if they live in or travel to endemic areas and they should be advised to use protective clothing and insect repellent for supplementary protection.

The Prevalence of Tuberculous Lymphadenitis in the Children of Ahvaz During the Last 5 Years

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Summary

Objectives

Tuberculosis is one of the most dreadful diseases. It is much more dangerous in children with poor immunity and increases death rates in them. Unfortunately, tuberculosis and tuberculous lymphadenitis are returning to many countries because of AIDS. This diseases have high incidence in children. Therefore, in this study, the prevalence of TB lymphadenitis in children of Ahvaz were identified.

Materials and Methods

Clinical records of cases with biopsy of lymphatic system who attended the university hospitals during the last 5 years were analysed. The parameters of age, sex and pathological diagnosis were studied.

Result

565 cases had biopsy of lymphatic system. 17.8% of them were children (<13 years) and 17.7% of them were adult (>13 years) and they had TB lymphadenitis. There was no significant between children and adult. In children, 37.5% were girls and 62.5% were boys.

Conclusion

TB in the boys were higher than the girls. But in the other countries, TB in girls were higher. The prevalence of TB in children (17.8%) was lower than the other countries. Moreover, the outbreak of TB could have occurred anywhere. Therefore, we need to establish and maintain effective services for diagnosis, treatment and surveillance of tuberculosis.

A Retrospective Study of Malaria Infections in International Medical Center of Japan

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Summary

Objectives

To evaluate the characteristics and the outcomes of malaria cases in International Medical Center of Japan in Tokyo.

Materials and Methods

All cases of malaria infections diagnosed in our hospital in recent 5 years were retrospectively reviewed.

Results

Between April 1999 and March 2004, a total of 38 cases of malaria (aged 18-60) were diagnosed. In all cases, malarial parasites were confirmed by testing thin blood smears. Twenty-two cases were *Plasmodium falciparum* infections, including 2 cases of mixed infections with *P. vivax* or *P. ovale*. 11 were *P. vivax*. 5 were *P. ovale*, including a co-infection with *P. malariae*. Although 13 patients had received chemoprophylaxis, none had taken the drugs completely as recommended. The median duration from fever-onset to consulting a doctor was 3 days in *P. falcipalum* infections and 5 days in *P. vivax* or *P. ovale*. As for 20 referral cases, it took 6 days in average from primary doctors to consultation, and some cases became severe as a result of the delay of diagnosis. Most of *P. falciparum* infections were treated with mefloquine and chloroquine plus primaquine were used for *P. vivax* or *P. ovale*. For severe *P. falcipalum* infections, artesunate plus mefloquine were used. The rate of recovery was 100%.

Conclusion

All malarial cases in our hospital were recovered, mostly with mefloquine or chloroquine plus primaquine. However, some referral cases took time for diagnosis and resulted in deteriorating. The importance of chemoprophylaxis and early diagnosis of malaria in primary care settings should be emphasized.

Susceptibility to HAV and HBV in Foreign Travellers in China

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Summary

Objectives

Susceptibility to HAV and HBV in travelers was determined by anti-HAV and anti-HBs. Methods of protection against HAV and HBV were recommended to the travelers according to the susceptibility.

Materials and Methods

16364 sera from foreign travelers who studied or worked more than 1 year in China were collected between 2001 and 2002. 626 sera were randomly selected and Anti-HAV, anti-HAV IgM, anti-HBs, anti-HBc, HBsAg were tested.

Results

Prevalences of anti-HAV and anti-HBs were 49% (307/626) and 47.3% (296/626) respectively. The prevalences of anti-HAV and anti-HBs were related to the age(Table I). Seroconversion of HBV largely resulted from vaccination (Table II).

Table I : Prevalence of anti-HAV and anti-HBs by age in foreign travelers in China

age	anti-HAV		anti-HBs	
	+	%	+	%
<20	12	22.2	12	53.7
20	53	34.8	53	44.7
>20	242	57.6	242	47.4

Table II : Prevalence of anti-HBs by age in foreign travelers in China

age	anti-HBs(+) and anti-HBc(+)		anti-HBs(+) and anti-HBc(-)		anti-HBs(-)	
	No.	%	No.	%	No.	%
<20	4	7.4	25	46.3	25	46.3
20	14	9.2	54	35.5	84	55.3
>20	78	18.6	121	28.8	221	52.6

Conclusion

Vaccination against HAV and HBV on foreign travelers who stayed more than 1 year in China was recommended. It is also recommended that some other protection measures should be taken such as drinking boiled water, not injecting in clinic with poor condition.

The Sero-Prevalence of Tick-Borne Encephalitis (TBE) in Malaysia - A Retrospective Study

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Summary

Objective

Tick-borne encephalitis is a viral infection of the central nervous system and is caused by tick bites, usually after travel to rural or forested areas. The disease is prevalent in Scandinavia, Western Europe, Central Europe and the former Soviet Union and East Asia including Japan. In Malaysia, so far there are no reported cases of TBE. In the present time, many illnesses have been attributed to travelling to other parts of the world. Thus it is important to carry out TBE prevalence study to determine whether the virus is present among Malaysian population.

Materials and Methods

Samples (sera, CSF, biopsy samples) from patients admitted to major MOH hospitals in Peninsular Malaysia with a clinical diagnosis of encephalitis but is IgM negative for JE, will be tested by TBEV IgM Elisa and TBEV IgG Elisa (DRG, Germany).

Results

Out of the 600 samples screened for TBEV IgG, all were non-reactive for TBEV IgG. In addition, out of the 100 samples screened for TBEV IgM, all the samples were also non-reactive for TBEV IgM.

Conclusion

Tick borne encephalitis is not present in the Malaysian population as yet. This could be the lack of the infection agent or the absence of the suitable vector.

The Use of Two-Step Reverse Transcriptase Polymerase Chain Reaction for Diagnosis of Rotavirus in Direct Stool Specimens, During an Outbreak of Acute Gastroenteritis in Cameron Highland, Malaysia

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Summary

Objective

A two-step Reverse-Transcriptase Polymerase Chain reaction (RT-PCR) was optimized as a diagnostic tool for the detection of rotavirus in stool specimens during an outbreak of acute gastroenteritis among young children in some Orang Asli settlements in Cameron Highland, Pahang.

Materials and Methods

Stool specimens were obtained from patients for acute gastroenteritis in Cameron Highland Hospital and contacts of the patients. The target rotavirus gene segment is a 278-bp portion of the major outer capsid glycoprotein VP7. Double stranded RNA was used as template in the Reverse transcriptase step followed by PCR.

Results

Results indicated that rotavirus was detected in 9 out of 77 stool specimens screened. Of those 9 specimens, 8 were also positive by electron microscopy. Subsequently, PCR amplicons from 4 of the specimens were sequenced and results indicate that the infective pathogen is rotavirus A serotype G3.

Conclusion

The study indicates that local rotavirus strains can be detected by the designated primers. Sequencing analysis reveals that all 4 samples are completely homologous to each other, indication that there was only a single source of infection rotavirus. Work is being continued to sequence the whole VP 7 gene to infer genetic linkages with other rotavirus isolates from different parts of the world.

Serological Surveillance and Molecular Epidemiology of Japanese Encephalitis in Malaysia

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Summary

Objectives

The Japanese encephalitis (JE) virus is the principal cause of epidemic encephalitis in the world with an estimated 55,000 clinical cases annually (Umenai ***et al***, 1985). Even though most hospitals send their samples to the IMR for JE testing, the true scenario of the prevalence of JE is not complete without a properly-designed serosurveillance study, where samples should come from all the states in Malaysia, collected, packed and transported under optimum conditions. In addition, we are attempting to optimize a Real Time Reverse Transcriptase for the diagnosis of JE as a complement to serological diagnosis.

Materials and Methods

Samples (sera, CSF, biopsy samples) from patients admitted to major MOH hospitals in Peninsular Malaysia with a clinical diagnosis of encephalitis was selected for the study. The procedure for the IgM assay was performed as described by Lam ***et. al.***, 1987. The target genome for the Real Time PCR was a 240 bp portion from the Pre-membrane region of the virus.

Results

For the period Jan and June 2004, a total of 333 samples were tested for JE IgM and 24 samples (7.46%) were positive. Real Time PCR was carried out on 18 samples, which were carefully selected based on the criteria of JE IgM borderline negative. JE RNA was detected in 2 of the samples.

Conclusion

The incidence rate of JE for the first 6 months of the year is similar to last year, when the incidence rate was about 6.5% for the whole of 2003. In addition, we have successfully optimized the Real Time PCR for JE as the 2 positive cases were the first reported for Malaysia. We hope to further screen more samples for JE Real Time PCR and attempt to isolate the virus for further characterization by sequencing. As such, it will be the first sequence data registration in the GenBank for JE virus isolated from human cases in Malaysia.

The Prevalence and Related Risk Factors of HBsAg Positivity : East Azarbaijan - Iran

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Summary

Objective

HBsAg is one of the important components of H.B.V and infection generation of the virus is related to that. In this study the prevalence of HBsAg in Eeast Azarbaijan Province, relative to different variables has been studied.

Materials and Methods

The population of under study is residents of age 2-69 years old of this province. The required data are taken from the plan " Health survey " that has been under provision of deputy for research of Health, treatment and medical education ministry.

Results

The number of people whose blood were examined for HBsAg, is 3409 whom 100 cases were positive (2.9 percent). The variables " place of residential, age, type of drinking water, economical status, axillary adenopathy and existance of parasite in faeces " showed significance correlation with HBsAg (p-value < 0.05).

Conclusion

By regard to that HBsAg has been related with type of drinking water and existance of parasite in faeces, We can decrease the prevalence Hepatitis B in rural regions by preparing safe drinking water.

Key Words : HBsAg Hepatitis B , Axillary adenopathy, Health survey

A Survey of the Antibacterial Activity of Some Iran Honeys

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Summary

To assay the antibacterial activity of Iranian honeys, a study was done on 78 specimens collected from different parts of the country (15 provinces, 38 districts) with the cooperation of the National Animal Husbandry Research Institute. Most of the honey samples had a polyfloral origins. Different species of *Astragallus*, Thyme and Thistle were the most abundant floral origins of these honeys respectively. *Citrus*, *Tamarix*, *Ferula gumosa*, *Alfalfa*, lotus, *Eucalyptus* and *Helianthus* honeys were considered monofloral. The antibacterial activity of the honeys was assaayed against *Staphylococcus aureus* by the agar well diffusion as standard. The mean total and non-peroxid antibacterial activity of the honeys were mesured to be 2.28 and 0.97 phenol percent with standard deviations of 1.18 and 0.38 phenol percent respectively. One of the Khorasan honeys, Babol 6, Ghorveh 10, Takab 4 and Takab 2 honeys with activities of 5.73, 4.73, 4.73, 4.73, 4.61, 4.38 and 4.32 phenol percent had the highest total antibacterial activity respectively. Regarding the non-activities of 2.75, 2.17, 2.04 and 1.79 phenol percent had the highest activities respectively

Key Words: Honey, Antibacterial activity

The Important Role of Electron Microscopy in the Detection of Rotaviruses in a Gastroenteritis Outbreak in Cameron Highlands, Malaysia

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Summary

Objectives

In April 2004, an outbreak of acute gastroenteritis occured in a community in Cameron Highlands in the state of Pahang. Between April and May, a total of 77 stool specimens were received at the Virology Unit, Institute for Medical Research, Kuala Lumpur, for viral investigations.

Materials and Methods

Several methods were used to detect viruses in stool specimens which included Latex Slide Agglutination assay, electron microscopy (EM), a reverse transcription–polymerase chain reaction (RT-PCR) assay and virus isolation by cell culture.

Results

From the 77 stool specimens investigated by Rotalex agglutination, EM and RT-PCR, 12 were positive by at least 1 method (15.6%) and 4 samples (5.2%) presented positive results for all method. Rotavirus particles were detected in 11 out of 67 stool specimens (16.4%) examined by EM.

Conclusion

Electron microscopy played an important role in this outbreak by strengthening the laboratory investigations with rapid visual identification of rotaviruses in the stool specimens.

Hand Foot Mouth Disease Surveillance in Malaysia

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Summary

Objectives

The Institute for Medical Research, Kuala Lumpur, had initiated a surveillance study to monitor enterovirus infections in Malaysia since 2002. The objectives of the study were to identify the circulating enterovirus serotypes among Hand Foot Mouth Disease (HFMD) cases and correlate laboratory data with clinical spectrum of disease.

Materials and Methods

Specimens were from hospital patients in Peninsular Malaysia and Sabah, aged below 5 years with clinical presentation of HFMD. The specimens included stool, throat swabs, rectal swabs and vesicle swabs collected in virus transport medium and also cerebrospinal fluid and post-mortem tissue from any fatal cases. Enteroviruses were isolated from Vero, and RD cell cultures and identified by immunofluorescent assay and by the polymerase chain reaction (PCR) method using enterovirus universal and type specific primers.

Results

Between January 2003 and July 2004, a total of 1072 specimens were received from 563 patients with hand foot mouth disease, myocarditis and a variety of central nervous system infections. A total of 43 enteroviruses were isolated from these cases.

Conclusion

Twenty-one out of 43 enterovirus isolates obtained were enterovirus 71, the predominant enterovirus serotype in 2003. The remaining enterovirus serotypes were coxsackie B5 (4; 9.3%), coxsackie B6 (2; 4.7%), Sabin polioviruses (2; 4.7%) and echovirus (1; 2.3%). Thirteen out of the 43 (30.2%) of the enterovirus isolates untypable by the immunofluorescence method were positive for pan enterovirus by PCR. There was no seasonal pattern in the incidence of the enterovirus infections.

Characterization of Virological Markers Associated With HCC in Patients Chronically Infected With HBV and/or HCV

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Background

Hepatitis B virus (HBV) and hepatitis C virus (HCV) infections constitute a major global health problem especially in the Asian continent. HBV and HCV infections are associated with a wide spectrum of clinical manifestations, ranging from acute or fulminant hepatitis to various forms of chronic infection including asymptomatic carrier state, chronic hepatitis, liver cirrhosis and hepatocellular carcinoma (HCC). In Malaysia, the incidence of chronic hepatitis B and chronic hepatitis C are estimated to be between 5% to 8% and 0.1% to 0.3%, respectively. In addition the majority of primary liver cancer is also associated epidemiologically with chronic hepatitis B infection. Currently there is a paucity of data in terms of the virogically factors and its role in liver cancer.

Materials and Methods

We have embarked on a study to construct a sequence database of Malaysian HBV and HCV viruses isolated from patients that have different clinical sequelae in order to analyze HBV and HCV variants associated with HCC to facilitate the development of a mutational sequence programme for analysis and identification of unique viral mutations. The main objective of this study is to define and characterize the virological factors that can predict the development of hepatocellular carcinoma (HCC) in patients chronically infected with HBV and/or HCV. HBV and HCV are highly mutable and replicate to high levels, resulting in a great genetic variation both within an individual and among populations. All of the patients for this case-control study were identified for unique matched control according to same gender, race and age group. All samples were tested for isolation and amplification of HBV and HCV as well as the detection of antibody, antigen and genotyping of both HBV and HCV. Samples with high viral load were selected for full length genome sequence analysis using Gunther et al method. This method allows the isolation of a large number of genomes.

Results

Our results indicate that HCV infection prevail in Malay ethnic group (52.9%). Most of the HCV infection was restricted to male patients (73.5%) with age group interval between 40 to 49 years old. This study also depicted that even though subtype 3a was the most prevalent in hepatitis C infection (9 cases), subtype 1a (2 cases) and 1b (1 cases) were also present. On the other hand, results for HBV genotyping indicated a domination of genotype C (20 cases) and genotype B (15 cases) in Malaysian patients, followed by genotype A (2 cases). Similar to HCV cases, most of the HBV infection occurred in male patients (85.3%). Ethnically, Chinese patients contribute the highest number of cases (51.5%) with age

group interval between 50 to 59 years old. Sequence analysis of the HBV isolated from a patient with HCC revealed a combination of multiple mutations in key regions of the HBV genome that may play an important role in HCC development. These mutations result in HBeAg loss, potentially increased replication and altered immune reactivity. Mutations in the basal core promoter (BCP) promoter (A1762/G1764), in conjunction with the precore stop mutation (pcW28stop) that result in reduction and loss of HBeAg expression were detected. In addition, a mutation at T1753 in the BCP promoter previously noted in advanced liver disease was also detected. A mutation at cI97L previously shown to have a high replication phenotype (Suk et al, 2002) was found in combination with a number of mutations in core at cE83D, cS87G and sL95I. Mutations in the core gene between codons 84 to 110 have been previously associated with HCC (Ehata, Omata et al, 1992) were found unique to HCC patient. However, a number of mutations was also detected in this region in the control CHB patient and may be associated with the future development of HCC. Mutations at cS21P and cV27I are located within in the major core epitope between codons 18-27; a further mutation was located in a CTL epitope at cL55I. Therefore these mutations may alter CD4+ T-cell reactivity.

Conclusion

In patients with HCC multiple mutations were located throughout the genome at key regions. These nucleotide and/or acid amino changes can effectuate the following phenotypes including (a) mutations associated with HBeAg loss, (b) mutations located in promoter/enhancer regions, (c) mutations previously associated with increased replication and (d) mutations within major immunological determinants subsequently altered immune reactivity. Variations of HBV sequence were observed within HCC patients, as compared with the control sequence.

Dengue Antiviral Activity of Phyllanthus Niruri Standardized Extracts

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Summary

Introduction and Objectives

Dengue fever, a mosquito borne viral disease of global importance is caused by dengue virus (DV). The four serotypes of dengue virus is endemic in Malaysia with four yearly cycles. The success of current management of Dengue haemorrhagic fever and dengue shock syndrome the severe end of the dengue fever syndrome relies to a great extent on the rapidity of diagnosis as well as supportive fluid replacement therapy. There is currently no antiviral treatment available for this disease. The genus *Phyllanthus (Euphorbiaceae)* has been used in folkloric medicine to treat numerous disease symptoms. It is most familiar in the treatment of liver ailment and kidney/urinary bladder diseases. Interestingly, the herb has also been documented to inhibit HIV-1 and Hepatitis B replication in vitro (Ogata et al; Mehrotra et al 1995). Clinical studies using standardized extract of the herb has also been carried out in the management of Hepatitis B infection (Wang et al 1995). In addition to this, *phyllanthus* use for dengue has been documented (Unander et al 1995). The preliminary results to assess the potential anti-dengue property of two standardized extracts of our local *Phyllanthus niruri*, namely EPN 797 and EPN 503 is presented here.

Materials and Methods

Cells and Viruses

DEN4 viruses used were prototype of the Hawaiian strain. Viruses was propagated in C6/36 cell line for seven days in Leibovitz's medium (L15) supplemented with 2% FCS and 10% tryptose phosphate broth. Virus suspension was collected by freeze- (at -20°C) thawing the infected cell. The lysate was cleared from cell debris by centrifugation and stored as viral stock. Vero cell was maintained in MEM medium supplemented with 2% FCS for maintenance and 10% for propagation.

Viral titration

Viral titration was done in C6/36 cell seeded into 96-well plate too determine the endpoint concentration of the virus (CD). Roughly, 1x105 cell/ml cell was seeded into each well. The well was infected with 0.01 ml of eight 10-fold virus dilutions in 10 replicates. 10 wells were left uninfected acting as cell control and 10 wells were left empty to act as background control. The reading of plate was done by Neutral Red Uptake assay and read using an ELISA reader at l=450 nm.

Plaque reduction assay

Antiviral activity of test material was done using a standard plaque reduction assay. 1x105 cell/ml Vero cell was seeded into a 24-well plate and left to confluent overnight. On the next day, 0.1 ml of 1CD50 of virus suspension was infected into the cell for 1 hour. After infection, with the exception of virus and cell control, 1 ml of overlay medium (0.8% CMC in 2% MEM) containing 1.25 mg/ml of test material was distributed into each well. Control wells were covered with overlay medium without any test material. The plate was left incubated for 7-days before plaque was counted with crystal-violet staining.

Results

Preliminary antiviral assays indicated that extracts EPN 797 and EPN 503 were able to reduce DEN4 production as compared to viral control by 65.2% ± 3.9 and 54.1% ± 6.5, respectively.

Conclusion

Standardized extracts of *P.niruri* seemed to have the potential to inhibit Dengue serotype-4 replication in vitro. Further studies are ongoing with other dengue virus serotypes to substantiate our preliminary results.

Real-Time PCR as a Diagnostic Tool for Detection of HIV-RNA Among Neonates

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Summary

Objective

A one step reverse-transcriptase polymerase chain reaction (RT-PCR) using SYBR-green was used for the detection of HIV-RNA in neonates. The objective of this study was to determine the diagnostic value of this method and to compare the sensitivity and specificity of HIV-DNA and HIV-RNA amplification in infected neonates.

Materials and Methods

Samples were selected from 21 neonates of which 9 neonates were HIV proviral DNA positive, 2 were only p24 Antigen positive and 10 were negative neonates. The target gene segment were 142bp and 115bp portion of the highly conserved region of the gag gene.

Results

HIV RNA was detected in patients for all the samples in which HIV DNA was previously detected as well as the 2 samples that were only p24 Antigen positive. All specimens from 10 uninfected neonates were HIV-RNA negative indicating a 100% specificity.

Conclusion

The qualitative HIV-RNA PCR may offer a better sensitivity over HIV-DNA PCR in the diagnosis of HIV infection in neonates especially during the late stage of infection were the PBMC count is low.

Surveillance of Dengue Serotypes in Malaysia

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Summary

Objectives

Dengue is a mosquito-borne viral infection endemic throughout the tropics and subtropics. The global prevalence of dengue has grown dramatically in recent years and it has been recognized as a potential hazard for human. Surveillance study is important to estimate the real dimension of the problem associated with this deadly virus. The objective of this study was to detect the presence of the dengue virus in suspected cases of dengue and to serotype the virus based on their genotypic characteristics.

Materials and Methods

Serum samples from suspected patients with dengue infection were received from hospitals in different states within Malaysia from January to August 2004. The samples were analyzed for the presence of the virus by RT-PCR. The serotypes of the virus present were established with primers corresponding to the four different dengue genotypes DEN1, DEN2, DEN3 and DEN4.

Results

Out of 1,022 samples received during the survey, 697 have been analyzed while 315 are still under study. Out of all (697) of the samples analyzed, 8.9% (62/697) and 91.1% (635/697) were positive and negative for the presence of the dengue virus, respectively. Out of all the positive samples, 30.5% (18/59), 10.2% (6/59), 10.2% (6/59) and 3.4% (2/59) were positive for the presence dengue serotype 1, 2, 3 and 4, respectively. Two out of the fifty-nine (3.4%) samples showed the presence of 2 different genotypes in combination. Twenty five samples were untypeable and 3 samples are still under study.

Conclusion

The presence of four different dengue serotypes detected in this study suggested that there is a diverse clonal nature of dengue viruses in the study area. The results obtained also confirmed the usefulness of the PCR as a simple and rapid method for the detection and discrimination of the virus serotypes.

Seroepidemiological Study of Mumps, Measles and Rubella in Malaysia – Current Status

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Summary

Objective

To assess the Mumps, Measles and Rubella seroepidemiological status of Malaysian population in view of the evolutionary changes in the MMR immunization policy.

Materials and Methods

A serological screening for Mumps, Measles and Rubella of serum samples from thirteen states in Malaysia were conducted. Races, gender, age, demographic data, and history of vaccination were recorded. Serum samples from 11,345 patients from 13 states were collected, of which 30 were excluded in this study. The samples were divided into eight selected age group. Antibody (IgG) detection was carried out by ELISA method using Dade Behring® Automated ELISA machine.

Results

The prevalence for Measles, Rubella and Mumps infection was 90%, 78% and 74% respectively. All three diseases showed rather similar pattern in antibody titer according to 8 different age groups (0-1, 2-5, 6-10, 11-20, 21-30, 31-40,41-50 and more than 50 years old). The antibody titer is high during their first year of age, decrease in their second year, and increasing afterward. All the ethnic groups show a high prevalence rate but the Chinese have a high prevalence rate for all diseases.

Conclusion

This study report for the first time the assessment of seroepidemiological status of the Malaysian population. The prevalence of antibody for all three diseases in major ethnic groups in Malaysia was particularly high. A similar pattern of antibody titer was detected based on different age groups.

Diseases Encountered Among Well Accommodated Travellers: A One Year Study in Lebanon

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Summary

Objectives

The number of world travelers has increased dramatically over the last decades. Although the majority of travelers do not develop health problems while traveling, some may suffer from minor ailments and few may develop major problems. Aim of this study was to look at the frequency of medical complaints of guests in one of the prestigious hotels in Lebanon, look at the type and severity of the medical complaint, and managements done

Materials and Methods

A survey of medical complaints in a 250 beds hotel with an occupancy rate of 60 percent was conducted over one year. The study was conducted in a five- star hotel located in the capital city Beirut. In case of illness, physicians taking care of the guests received the complaint on the phone. According to the medical history given by the patient or accompanying member, physicians would evaluate the seriousness of the situation and initiate care immediately: decide if physical examination is mandatory or an advice can be offered on the phone.

Results

Physicians were consulted 114 times; 89% of the times the physicians examined the sick guest, and 11% of the times the problems were solved on the phone. The total number of problems necessitating medical examinations was 102 times. Complaints were as follows; gastrointestinal (50.98%), respiratory (25.4%), headache (7.8%), anxiety (2.9%), tendenitis (1.96%), gynecologic problems (2.9%), conjunctivitis (1.9%), lacerations (0.98%), soft tissue infections (1.96%), arterial embolus (0.98), intestinal ischemia (0.98%), and dead on arrival (0.98%). Two cases were hospitalized and the physicians' opinion was life saving in both. It is worth mentioning that the patient with intestinal ischemia, had the ileum caught by the stomach, a rare condition, reported in only five reports in the literature.

Conclusion

Variety of medical illnesses ranging from the very common to the rare can affect the travelers. Despite the fact that most complaints were common problems, serious diseases and life threatening conditions were also encountered.

Pregnancy Course and Outcome with Traveller's Diarrhoea

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Summary

Background

The effects of traveler's diarrhea on pregnancy was not yet defined

Materials and Methods

Ninety-nine pregnant females suffering from traveler's diarrhea (group I) have been studied and compared to one-hundred matched control cases (group II). The effects on the pregnancy course and outcome and on the neonates were compared.

Results

Twenty-three patients of group I (23.2%) gave birth preterm as compared to 8 cases of group II (8%; P<0.01). 7 of cases of group I (7.1%) suffered second trimester miscarriage, versus 3 (3%) of the controls (P< 0.05). Average term neonatal birth weight for group I was 2611 g versus 2993 g for group II (P<0.05). 13 of group I infants (13.2%) were admitted to the neonatal intensive care, versus 5 (5%) of group II, (P<0.05) and the average hospital stay was 7.3 and 3.9 day, respectively (P<0.05). 4 and 1 neonatal deaths took place in groups I and II, respectively; the cases of group I were: 2 due to septicemia, one due to respiratory failure and one due to enterocolitos, and that of group II was due to respiratory failure. There was no congenital anomaly in either group.

Conclusion

Traveler's diarrhea is associated with a considerable risk for preterm labor and second trimester miscarriage, and consequently increased risks of poor neonatal outcomes. Active treatment is recommended for the prevention of these complications.

Traveller's Diarrhoea in Infancy

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Summary

Introduction

Diarrhea is a common health problem of travelers, especially in the tropics. This health problem is of relevance during infancy, due to the seriousness of the complications. However, the magnitude of the problem is not yet defined

Materials and Methods

A 3-year survey of 985 traveler infants < 1 year of age was performed. Cases suffering from diarrhea and diarrhea-related symptoms were studied for :1) the severity of the diarrhea, 2) the associated symptoms, 3)febrile illness, 4) dehydration, 5) the need for hospitalization, 6) the causative agents, and, 7)the duration of treatment.

Results

259 infants (26.3%) had diarrhea or diarrhea-complex complaint. Diarrhea as a sole problem was found in 149 (15.1%). Additionally, emesis was found in 71 (7.2%), fever in 19 (2%), dehydration in 13 (13.2%) and weight loss in 7 (7.1%). In 214 (82.6%), infants the diarrhea and related symptoms were cured in less than three days; and in 39 (15%) in less than one week; only two cases needed hospitalization for more than a week. Escherichia coli was the causative organism in 211 (81.5%); Shigella in 13 (5%), mixed infection in 29 cases (8.8%); and giardia (3.4%) in the two other cases.

Conclusion

Infant Traveler's diarrhea is not uncommon. This age group is particularly prone to some serious complications.

Lactobacillus Acidophilus Therapy for Infantile Travellers's Diarrhoea

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Introduction and rationale:

Infantile traveler's diarrhea is associated with significant alteration in the intestinal microflora.

Research purpose

The work target was to assess the possible therapeutic value of probiosis with Lactobacillus acidophilus in cases of infantile traveler's diarrhea.

Materials and Methods

Ninety-seven infants under one year having infantile traveler's diarrhea were allocated into two groups: Group I 49 infants receiving both conventional antibiotic therapy and Lactobacillus acidophilus sachets; and Group II of 48 infants given only conventional antibiotic therapy. Response to treatment was observed in the form of: the duration of diarrhea, duration of febrile illness, incidence of dehydration, and the need for hospitalization and recurrence within two weeks.

Results

	Lactobacillus + antibiotics	Antibiotics only
Number of cases	49	48
Duration of diarrhea	1.8 + 0.8	4.7 + 1.0 #
Duration of fever	1.3 + 0.5	1.2 + 0.7 ns
Dehydrated cases	4 (8.2%)	9 (18.7%)#
Hospitalized case	7 (14.3%)	19 (39.6%) ##
Recurred < 2 weeks	5 (10.2%)	11 (22.9 %) #

Ns: not significant
# $P < 0.5$
$P < 0.01$

Conclusion

Lactobacillus acidophilus may be an important addition to the therapeutic modalities for infantile traveler's diarrhea.

Probiotic Therapy for Vaginitis Associating Traveller's Diarrhoea

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Introduction

Many cases of traveler's diarrhea, and of vaginitis are attributed to disturbances in the body microflora. The work aimed at evaluating probiotic therapy with Lactobacillus acidophilus for such cases.

Materials and Methods

Ninety-one cases suffering from both traveler's diarrhea and vaginitis were evaluated. They have been randomly allocated to one of two groups: Group I (50 subjects) received ***Lactobacillus acidophilus*** (five billion lyophilized killed microbial bodies per capsule; as 2 capsules orally and 2 vaginally, twice daily) in addition to conventional specific ***antibiotic therapy***, and, Group II (49) received only conventional therapy. The two groups were compared as regards the ***clinical improvement*** of diarrhea and vaginitis, and the ***microbiologic cure*** of ***vaginitis.***

Results

Forty-three cases of Group I (86%) showed complete resolution of both complaints, versus 29 (59.2%) of Group II ($P<0.01$). ***Vaginitis*** only was cured in 5 (10%) of Group I versus 1 (2%) of group II. Diarrhea only was cured in 2 (4%) of cases of Group I versus 18 (26.5%) of Group II. Microbiologic cure of vaginitis took place in 41 (84%) of cases of Group I versus 23 (47%) of Group II ($P<0.01$). All cases of ***candidal vaginitis*** (27) in Group I showed microbiologic cure versus 10/13* (77%) of mixed infection, and only 4/10 (40%) of ***trichomonas vaginitis.***

Conclusion

Lactobacillus acidophilus is an effective adjuvant therapy for concomitant traveler's diarrhea and vaginitis

Travellers' Persistent Diarrhoea in Children (Tehran, 2002)

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Summary

Objectives

Travelers' diarrhea is the most common illness affecting travelers. Each year between 20%-50% of international travelers, around 10 million persons, estimated to develop diarrhea. High-risk destinations are developing countries. A more difficult problem in travelers' diarrhea is the persistent diarrhea (lasting •14 days) that occurs in approximately 3% of travelers who have acute diarrhea. The main purpose of this study was to determine the role of travel in persistent diarrhea morbidity among children under 5.

Materials and Methods

1058 under 5 years children with diarrhea were selected and followed up for two weeks after onset of diarrhea. Main risk factors of diarrhea prolongation and the history of travel during 5 days before onset of diarrhea were studied.

Results

In 84 children (8%) the duration of diarrhea was 14 days and more (persistent diarrhea). The history of family travel in 5 days before onset of persistent diarrhea was studied and the result showed that 20 children (24%) had the history of travel.

Conclusion

In this study we found out that a significant percentage of children with persistent diarrhea had a travel before contracting diarrhea. Traveling in developing countries, particularly for children, leads to many problems such as poor handling, prepration and storage of the food, water contamination ,and other risk factors. So from the point of epidemiologic assessment of persistent diarrhea it seems the travel is only a predisposing factor not actually is a true risk factor.

Use of the Internet for Traveller's Health Education to Medical Students and Doctors

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Target

This study aimed at defining: 1) the value the internet offers to medical users in traveler's health field, and, 2) internet resources in common use.

Materials and Methods

Medical students and doctors of three public health hospitals were interviewed using standardized questionnaire. Areas of Internet utilization, including e-mail, general surfing, Med-line; sites of Medical Colleges and medical journals were valued on scales for importance and frequency.

Results

A total of 216 doctors and 411 medical students were interviewed. 82% of the doctors and 96% of the students had access to the Internet. Gender distribution was identical in students; while in doctors, there was male predilection (53%) in the group above 50. For students, the frequency of the web use was: e-mail (100%), general resources for traveler's health (43%), Medline (13.5%), medical colleges (12.5%), and web sites of medical journals (1.3%); for doctors: Medline service (89%), email (78.5%), then, medical journals (29.7%), medical colleges web sites (27.3%), and public health education resources (15%). Medline is rated "very important" by 95% of doctors and 67.7% of the students.

Conclusion

Medical students and doctors have growing up interests in web use for traveler's health information. Only few Internet resources are in frequent use. There are specific differences in the use of the Internet between medical students and young doctors on one side, and senior medical staff on the other.

Nutritional Evaluation of Traveller's Food in Isfahan (Iran)

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Summary

Objectives

In Iran sausage is one of the most acceptable foods for most travelers, and for some travelers it is the main food for days or months. The objective of this study was to investigate nutritional value of this kind of foods (sausages), and compare their price and nutritional value.

Materials and Methods

We collect 12 samples of sausages from three producers in a three months period. Then we determined their energy, fat, protein, carbohydrate and iron, chemically and protein quality, biologically (protein efficiency ratio).

Results

The energy, protein, fat, carbohydrate and iron content of these foods ranged; 238.3-346Kcal/100, 12.1-17.7 gr/100, 14.3-29.8 gr/100, 1.3-20.4/100 and 1.58-4.85 mg/100 respectively. Protein Efficiency Ratio (PER) ranged 1.24- 2.62. The most expensive sausage was Dry form and the cheapest one was Mortadella.

Conclusion

Our results, indicates that sausage products in Isfahan were acceptable for travelers in order of nutrients quantity and quality, but there were not any positive correlation between price and nutritional indices.

Overview of the Travel Health Advice Concerning Infectious Diseases Given to Japanese Holidaymakers Travelling from Japan to Overseas

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Summary

Objective

Promoting risk- reducing behaviors among holidaymakers is an important of the global effort to control infections diseases. Yet little research has so far been carried out to assess the quality and effectiveness of travel health advices. As a first step in the attempt at fulfilling this gap, this research reviewed the current travel health advice given to Japanese holidaymakers.

Materials and Methods

Textual travel advices in the form of print and electronic media were collected from various sources. The materials were reviews and analysed in terms of quatity (using content analysis) and quality (using discourse analysis) of information being provided.

Results

Currently 3 websites offer "official" advice and information regarding infectious diseases for Japanese holidaymakers. Furthermore, 5 related books are on the market, and a limited number of pamphlets are distributed at travel clinics and quarantine offices to those who come for vaccination. All materials described the common infectious disease in a scientific manner, mentioning the infectious agent, routes of transmission, recognizable symptoms etc., and explained ways of preventing them.

Conclusion

The current travel health advices are based on the biomedical understanding about health and illness in which individuals are assumed to act rationally once fed with scientific facts. Numerous researches on health education/ promotion however point to the inadequacies of such understanding of human behavior, and to the need to take into consideration the various contextual factors that influence holidaymakers' behaviour. The next step will be to assess the actual impact of such travel health advices.

What Nursing Students Learned from Classroom Lessons on Medical Care for Overseas Travellers

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Summary

Objectives

The present study was undertaken to analyze reports filed by nursing students about medical care for overseas travelers, with the goal of devising better techniques for teaching nursing students about international nursing.

Materials and Methods

In December 2002, at the end of 30 hours of classroom lessons on medical care for overseas travelers, provided to 4th year students in the Nursing Department at A University, the students were instructed to file a report on what they learned from the lessons. The author extracted individual sentences or groups of sentences on each topic from the reports submitted by the students, and classified them by topic. These descriptions were then categorized and analyzed. One hundred students consented to analysis of their reports and presentation of the analysis results at a professional conference.

Results

In total, 127 descriptions were extracted from the students' reports. They were divided into 6 categories and subdivided into 25 subcategories. The six categories were "knowledge about overseas travel", "about nursing", "student's own knowledge", "travelers' medicine", "recognizing Japan anew" and "others". The category "knowledge about overseas travel" was divided into 11 subcategories. The category "about nursing" was divided into 4 subcategories. "Student's own knowledge" was divided into 3 subcategories.

Discussion

The students had learned about nursing in general, international nursing, international health, international nursing in regard to infection and other subjects prior to this survey. However, they had little knowledge directly relevant to the medical care of overseas travelers. The classroom lessons on this theme provided the students an opportunity to learn information necessary for dealing with health issues that might arise during overseas travel. Specifically, they learned about the importance of understanding the status of medical care in foreign countries by collecting information on the destination countries, the necessity of providing health guidance to travelers and the fact that the foci of nursing practice potentially relate to every place in the world and every Japanese traveling overseas, working overseas or having emigrated to a foreign country.

Influences of Long Flight Syndrome and Sleep Apnoea Syndrome on the International Travellers on Board

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Summary

Introduction

Long flight and jet lag may often cause severe sleep disturbance on the intercontinental and/or international travelers by air carrier. Furthermore, some flight passengers suffer from "Long Flight Syndrome (LFS)", so-called "Economy-Class Syndrome". LFS may even influence on the patients of "Sleeping Apnea Syndrome (SAS)" during on board. It is necessary for such travelers to avoid both LFS and SAS. I report the relations of LFS and SPS from the viewpoint of aviation and aerospace medicine.

Materials and Methods

During the two different flight of 9 hours long flight and 1-3 hours short flight, portable SAS diagnosis device (LS-100 and LT-200 made by Fukuda Denshi) was attached on two subjects, one showing SAS ordinary [SAS(+)], and another not showing SAS ordinary [SAS(-)]. Frequency of apnea, arterial saturation (PaO2), sleeping posture, and bronchial sound were recorded during flight with waking and sleeping hours. To remove impression of "Economy-Class", we used "Upper –Class" sheet for the measurement.

Results and Conclusion

The changes in atmospheric pressure of the cabin affected the arterial saturation both for the subject [SAS(+)] and [SAS(-)]. As atmospheric pressure went up, PaO2 decreased by 6-7% even during waking hours. With extensive long flight, this tendency was strongly shown especially for the subject [SAS(+)] during his sleep. This indicated that SAS is emphasized during sleep on board. SAS patients who travel on board should take care if their flight includes sleeping hours or not. Continuous fixed posture and decreased arterial saturation with sleep disturbance also may increase the risk of LFS.

On the Dangerous Side of Motion Sickness

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Summary

Rough seas cause ships to move in a complex fashion and travel on sea includes spending time in the constantly moving, rolling and vibrating environment.

Motion sickness is just one of the consequences of macro vibration of the ship. Practically every human being is susceptible to it, if provocative stimulus is appropriate and lasts long enough. Despite considerable improvement in our understanding of this unpleasant syndrome, we still do not have a drug that would eliminate already developed symptoms and be without unpleasant and unwanted side effects. Several recent studies are suggesting that motion sickness alters thermoregulatory function of the body, and in certain maritime accident situations may result in the earlier onset of hypothermia. Also there are proofs that macro vibration is causing significant changes in homeostasis of calcium, with consequent osteoporosis in seamen.

Vibration may be considered as a strong and long-time active irritation on board ship, which can sometimes endanger lives of passengers and crews, and have other serious health implications.

Cognitive Function of Elderly Haj Pilgrims

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Summary

All pilgrims to Mecca undergo mandatory health screening. In 2003, all elderly pilgrims were also required to undergo a Mini Mental State Examination (MMSE) to screen for dementia. The MMSE is a validated screening tool for cognitive impairment that tests orientation, registration, attention and calculation, recall and language. A score of 23 or lower is indicative of cognitive impairment.

Objectives

To assess the cognitive function of elderly Haj pilgrims and to estimate the prevalence of probable dementia among this study group.

Materials and Methods

Health screening for all Haj pilgrims were held from 19.8.03 to 12.9.03 at Pilgrims Fund Board, Kelana Jaya. In addition, all pilgrims above the age of 65 years were administered a standard MMSE questionnaire (Folstein 74) by trained nurses.

Result

A total of 1502 pilgrims had health screening of which 77 (5.1%) were above 65 years old. Ages of the elderly pilgrims ranged from 65 to 74 years old. The majority of the elderly pilgrims were female Malays but more males were literate. 42.9% had hypertension, 19.5% were diabetic and 3.9% had previous stroke. 79.2% scored 24-30, 9.1% had scored 18-23, 10.4% scored 10-17 and 1.3% scored 0-9.

Conclusion

1 in 5 elderly Haj pilgrims were found to have probable dementia.

Travel Medical Kit and Vaccinations for Travelling to South East Asia (Presentation of Workshop of Travel Medicine for General Practitioners in Slovenia)

M Rajtmajer

Slovene Family Medicine Society

Summary

Aim

The aim of workshop is to educate general practitioners in Slovenia how to advise travellers who travel to South East Asia about travel medical kit and vaccinations.

Materials and Methods

Oral presentation to participants of the course of travel medicine for general practitioners in Slovenia.The speakers are experts of travel medicine who also worked in tropical countries.

Objective

South East Asia is a very popular travel destination for Slovenians. A great number of them look for advice before travel or require medical help after they return home. It is very important for physicians who deal with patients travelling to the tropics to be familiar with possible diseases to which such travellers might be exposed. Traveller should get general health advice, information about recommended vaccinations and malaria protection and advise regarding the travel medical kit. Health advice must be personalised for each traveller, taking into account age, underlying health, duration of travel and anticipated level of geographic risk. Care should be taken regarding the quantity of travel medical kit, so that it will be useful to the traveller and not just an extra weight of the baggage which is already heavy enough.

Conclusion

In order to achieve the best steps, before, during and after travel, general practitioners must be aware of basic principles of travel medicine and all information about travel medicine must be accessible to them.

Injuries Among Travellers on Highways In the Northern Coast Route of Java During Aidil Fitri Festnities in 2003

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CDC and EH-MOH Indonesia

Summary

Travellers are more likely to die injured in traffic accidents than caused by infectious diseases. Traffic accidents are the most frequent etiology of death among travellers. Significant risk exist at many countries, particularly developing country like Indonesia. Indonesia with population circa 220 million people naturally has a diversity and multi culture/religion with its own traditional or geographic habit. Being in the 4th most populous Moslem country in the world it is a universal habit that people should always return to their respective area where they are born and raised. They usually flock at the end of Moslem fasting month which called Aidil Fitri. This return to birth-place activity happens annually. The majority of local travellers mostly will take "Pantura Route" .

Northern Coast Route of Java. In 2003, there are 510 times accidents recorded and 1560 injury cases to traffic accidents caused by driver i.e 8,62%, vehicle 4,11% and other 87,27%. The most frequent etiology of accidents is happened due motorcycle 78,31%, car 22,08% and others is 3,21%. Out of 1560 injury cases there are 1289 cases (82,62%) light wound injury, severe wound injury 222 cases (14,23%) and died 49 cases (3,14%), patients who are referred to hospital 135 cases (8,65%). Out of 3692 illness cases, there 1158 cases (31,36%) gastro intestinal disturbance, 768 cases (20,8%) upper respiratory tract infections, 46 cases (1,25%) cardiovascular disease, 48 cases (1,3%) urinary tract infection, 32 cases (0,87%) geriatrics, 77 cases (2,9%) neurologist disturbance and other, (observation) 1.303 cases (35,3%), patients who are referred to hospital 87 cases (2,36%)

Mental Health of Japanese Workers and their Families Staying in Foreign Countries

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Summary

Objectives

Recently, many Japanese workers are transferred to foreign countries. And the total number of Japanese workers staying in foreign countries is about 800 thousands in 2000. But, in some cases, their new occupations are, actually, changing for the worth. So some workers complain mental illness for the stress. And their families living in foreign countries also complain mental illness. However, there are few hospitals in foreign countries which they can consult in Japanese.

Materials and Methods

In order to research the mental state of Japanese workers and their families (including persons who were naturalized as a foreign countries citizens by international marriage) living in foreign countries, we used a self-administered questionnaire in 1997. This questionnaire had been made for this study and included followed questions: sex, age, marriage state, place of working, period of now job, position, satisfaction of daily life, support, optimistic or pessimistic tendency, behavioral pattern against stress, and a kind of psychological tests (GHQ-12).

Results and Conclusion

The answers (1461 subjects) were replied completely this questionnaire. Japanese workers living in foreign countries show higher score than the workers living in Japan by both psychological tests. It means that Japanese workers living in foreign countries have more depressive tendency than the workers living in Japan. And particularly, female workers have more depressive tendency than male workers. In general, this tendency applies to women. The housewives living in foreign countries also show higher score than women living in Japan. It is necessary for stressful people to establish consultation system.

Oxygen Saturation Performance at High Altitude Infuenced by Time

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Summary

Objective

To investigate the relationship between the oxygen saturationÅ@ and pulse rate and _ time change _ humidity rate _ ethnicity.

Materials and Methods

To check oxygen saturation in blood and the pulse rate of the thirty five people who are staying in La Paz,Bolivia (3700m) by pulse oxymeter(OMRON) at the four times a day (_AM9:00, _ AM12:00 _PM2:30 _P.M6:00) and to check humidity rate of the same day. The ethnicity component of 35 people is as follows: Japanese (short stay) 20 Japanese (Long stay) 4 Bolivia+Japanese 4 Bolivia 7.

Results

(Study is not finished yet.)

Conclusions

It is speculated that the value of oxygen saturation rate order is following as:

We must wait the end of the study to have comments on the relationship between the oxygen saturation rate and the humidity rate and the ethnicity.

The Use of Travel Vaccines by Japanese Expatriates in Developing Countries

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Summary

Objectives

We developed a questionnaire-based investigation to clarify the use of travel vaccines among Japanese expatriates in developing countries.

Materials and Methods

From 1998 to 2001, questionnaires were given to the subjects. On the questionnaire, the travel vaccines were listed, and the subjects were requested to note the vaccines they had received before departure.

Result

The percentage of those using more than one type of travel vaccine before departure increased significantly (45.6% in 1998 to 53.4% in 2001 ($p<0.001$)). In regions such as tropical Africa and South Asia, vaccination rates were high. But the increase was most noticeable in East Asia, the Middle East, and Latin America. Vaccinations against hepatitis A, hepatitis B, and tetanus were high throughout the developing countries. Vaccinations against yellow fever and Japanese encephalitis were high in endemic regions. Vaccination rates were slightly higher for typhoid fever in South Asia and tropic Africa than that in other areas. Vaccination rates for cholera, however, showed yearly declines.

Conclusion

These trends seem to reflect a growing awareness among expatriates of the benefits of travel vaccines. Even so, nearly half of those leaving the country have not received sufficient vaccination, indicating a need for further education.

Rabies Pre-Exposure Vaccination for Travellers: Two decades of Experience with Purified Chick Embryo Cell Rabies Vaccine (PCECV)

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Summary

Rabies, an acute viral disease that is fatal to humans once clinical symptoms develop, remains endemic in most parts of world. Although it can be prevented by appropriate pre-exposure and/or post-exposure vaccination, an estimated 50,000 deaths per year occur worldwide, mainly because of failure to seek treatment or inadequate treatment at the time of exposure. More than 90% of reported human rabies deaths occur in Asia and Africa, in regions where canine rabies remains endemic. Travellers to such regions should consider pre-exposure vaccination, as in the event of exposure, only two booster doses are required and no administration of rabies immune globulin is necessary.

PCECV (Rabipur®), an inactivated, modern tissue culture rabies vaccine has been used for pre-exposure prophylaxis for two decades. In numerous studies immunogenicity and efficacy as well as safety of PCECV have been proven. Several studies demonstrated fast onset of immunity after intramuscular as well as intradermal pre-exposure vaccination. Additionally, recent data have demonstrated longevity of protection: 14 years after a booster following a complete primary 3-dose series with PCECV, adequate rabies neutralizing antibody titers were detected and an additional booster led to an excellent anamnestic response.

In summary, pre-exposure prophylaxis with modern tissue culture rabies vaccines like PCECV is an effective and safe means of preventing rabies and should be considered for travellers to rabies endemic countries.

Oral Cholera Vaccine - For Whom, When and Why?

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Summary

Objective

To assess the use, effectiveness and safety of the available oral vaccines for cholera and the situations for which it is best suited.

Materials and Methods

A review of recent literature on the work done in various locations around the world to assess the use of oral cholera vaccine in a variety of environments including endemic areas, epidemic situations and its usefulness for the traveling public.

Results

Currently, the World Health Organization does not recommend use of cholera vaccine for travelers or its use in refugee or disaster-relief situations. Provision of safe water and access to appropriate sanitation is paramount in all situations where cholera is of concern. In endemic areas, the use of vaccine can provide protection and reduce transmission of cholera as well as modifying the clinical picture to reduce the severity of illness. For travelers, decisions need to be made on an individual basis but an important additional benefit is the short-term protection afforded by certain oral cholera vaccines against enterotoxigenic E Coli.

Conclusion

There is clearly the potential to reduce the burden of illness both in endemic and epidemic situations with the use of oral cholera vaccine. This must be weighed against the costs and logistics of vaccine provision. For travelers, the actual risk of cholera is very small and a more significant benefit is the cross protection afforded by certain formulations of the vaccine against the commonest cause of traveler's diarrhoea, enterotoxigenic E Coli.

The Analysis of Preventive Inoculation of 5906 People Exiting China from Panjin

Tian Hong

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Summary

Purpose

To analyze the situation of prevention inoclution of people exiting China, which is helpful to the health of international travelers. It is necessary for the International Travel Healthcare Center to carry out preventive inoculation.

Materials and Methods

To count the preventive inoculation data of the people exiting China from Panjin International Travel Healthcare Center and analyze the data. The health conditions of the inoculated people as export laborers in foreign countries have been inquired about from their accompanying doctors.

Result

5906 out of 7235 people exiting China from Panjin have been inoculated againts various diseases, accounting for 81.6% of the international travelers.

Conclusion

The inoculation of poeple exiting China should be carried out strictly following the procedures of immunization inoculation. People with disease that cannot be inoculated should be made clear. Travelers should learn about certain points for attention. inform the travelers of the best innoculation time to ensure the traveling health of people exiting China

Influenza Vaccination Status, Occurrence of Ili, and Consumption of Antibiotics in Indonesian Pilgrims

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Summary

Annually, more than 2 million Moslems from various part of the world visit Mecca and Medina in Saudi Arabia to perform ritual Haj. About 200,000 pilgrims are from Indonesia and about 7,000 come from Medan. The aims of this study were to know vaccination status, occurrence of ILI *(Influenza like Illness)*, and consumption of antibiotics among pilgrims. This study was conducted by filling questionnaire about influenza vaccination status, symptoms and signs of ILI, and consumption of antibiotics among pilgrims.

Result

From 919 pilgrims, 35% were at high risk, 68.2% have underwent influenza vaccination, and 30.7% suffered of ILI. Seventy four percent of pilgrims have consumed some antibiotics, and 95.4% of pilgrims that were suffering of ILI have consumed some antibiotics. We compared the pilgrims who have underwent influenza vaccination against those who were not vaccinated, related to the consumption of antibiotics. Statistically we found no difference between both groups.

Conclusion

Among the pilgrims that consumed some antibiotics, there were no difference between those who were vaccinated and those who were not. We suggested other factors that cause ILI and antibiotics consumption, namely, using mask, bacterial infections, and vaccine efficacy.

Key Words : Pilgrims, Influenza Vaccination, ILI, Antibiotic

Awareness of Hepatitis Infections Among Residents in Kuala Lumpur and Selangor

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Summary

A survey was carried out to assess the level of knowledge and vaccination coverage of hepatitis A and B among 753 subjects (>12 years of age) from rural areas, town areas, undergraduates and healthcare workers. The main objective of the study was to assess the relationship between the level of hepatitis A and B knowledge and vaccination status of the participants. A questionnaire was distributed and completed by the subjects. The results showed that the overall level of knowledge among the public was low compared to healthcare workers and undergraduates. The hepatitis A vaccination coverage was very low among all the groups (<8%). The hepatitis B vaccination coverage was generally low among the groups of non-healthcare workers (<35%) and higher among healthcare workers (65.6%). There was a strong association between the level of knowledge of hepatitis A and B and the status of vaccination among the participants ($p<0.01$). The study concluded that health education on hepatitis A and B should be provided and vaccination programmes should be held more frequently among the public, especially in rural areas.