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Review Article

Traveller's Vaccinations – An Indian Perspective

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Summary

People travel all the time, for work, for pleasure, for treatment, for learning, for teaching or just like that. They unknowingly expose themselves to the unseen threat of disease and morbidity of the foreign land. When in India, one thing needs to be taken care of – Vaccine preventable Diseases (VPDs). India is home to various life-threatening but easily preventable diseases like cholera, typhoid, rabies, influenza, hepatitis and tetanus. One must make sure that their immunization is up to date and required vaccinations are received at least a couple of weeks before travelling.

Keywords: Vaccine preventable disease, Traveler's vaccine, immunization, India.

1. Perils of Globalization

This era is marked by globalization. People travel all the time, for work, for pleasure, for treatment, for learning, for teaching or just like that. International travel has become increasingly popular and according to the World Health Organization (WHO), more than 900 million internationals trips have been undertaken in 2010.[1,2] Approximately 80 million persons from industrialized countries travel to the developing world each year.[3] They unknowingly expose themselves to the unseen threat of disease and morbidity of the foreign land. All the countries of the world are struggling with different health problems and even a short trip can cost the traveler his good health. So people should not just be aware but should also be prepared to take on any impending danger they might be facing. The best way is to get vaccinated against the diseases endemic to the area of travel, so that travel is as carefree and enjoyable experience as it should be.

2. Things to Consider Before and During Travel

Steps should be taken to anticipate any issues that could arise during the trip. One should try to learn about the travel destination as much as one can. One must see a doctor before travelling and the health status should be assessed. If the person is too sick to travel like he/she had recent illnesses, injuries or surgeries then one must consider the risk and benefits of undergoing the journey. [4] Also, if the travellers have some special health needs like in case of small babies, pregnant women, people with disabilities or people with weakened immune system then they should take special precautions and prepare accordingly. [4] It is also important to take care of health during the trip. Sunscreen and insect repellents should be used. One must always be careful about the food or water that he/she is ingesting. Alcohol use should be limited, protective gear must be worn while doing adventure activities and local laws and customs should be respected at all times to avoid any confrontation.

3. India- Home to Various Infectious Diseases

When in India, one more thing needs to be taken care of – Vaccine preventable Diseases (VPDs). The morbidity and disability caused by VPDs in a country like India is humongous. [5] The tourists are not spared if they do not take the necessary precautions or vaccinations beforehand. For all vaccines to work, it takes at least a couple of weeks so a healthcare provider should be visited

well before time and necessary vaccines should be taken at least 2 weeks before the visit. Center for Disease Control (CDC) states "Traditionally, vaccines have been associated with protecting young children, but far too many adults become ill, are disabled, and die each year from diseases that could easily have been prevented by vaccines."[6] For vaccines to be given to travellers, the routine schedule of childhood vaccinations and booster shots should be checked, updated or even completed. Additional vaccinations against hepatitis A and B, typhoid fever, poliomyelitis, rabies or Japanese encephalitis may be recommended. [7] This will depend on a number of factors including the exact destination and route (developing countries, rural areas), planned activities (backpacker, family visit, and business trip), duration of travel, season, age of the traveller and current health status including the current medication and previous vaccinations. [7]

Here are the various diseases endemic in India and the necessary vaccinations available against them:

- **Hepatitis A**

Hepatitis A virus (HAV) that gets transmitted through feco-oral route causes mild to severe liver infection. [8] The virus has a worldwide distribution and causes about 15 million cases of clinical hepatitis each year and studies in India have shown HAV sero-prevalence to be between 38% and 92% in different age groups. [9] Various findings have shown that a significant proportion of the Indian adolescent and adult population is at risk of Hepatitis A Virus (HAV) infection. It has been seen that unvaccinated travellers from low-prevalence countries are at increased risk of hepatitis A and B infection whilst travelling to highly endemic regions.[10,11] Vaccination against HAV and HBV, with two or three doses of the monovalent vaccines, respectively, or three doses of the combined hepatitis A&B vaccine is recommended by the World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC) for travellers to endemic areas.[12,13] Despite undertaking high-risk activities, travellers are often unaware of the potential risk factors for hepatitis A and B during travel.[14-18]

- **Hepatitis B**

India is a country of high endemicity with 300,000 new Hepatitis cases occurring each year.[19] Adults in high risk groups of acquiring Hepatitis B are healthcare providers, those who require frequent blood, injectable drug users, people having multiple sexual partners, men who have sex with men and household contacts of Hepatitis B patients or carriers. Three doses (for high-risk groups if not previously immunized) are recommended.

- **Tetanus**

In India, like in most of the developing countries in the world, tetanus is endemic and it remains a public health problem even today. Few studies which were done in India have revealed the prevalence of tetanus and the mortality which is caused by tetanus to be high. [20-23] In most of the countries, however, no provision exists for vaccinating the people who were born before these programs were implemented, thus providing the boosters, which are required for a long-term protection, or for protecting those who missed the schedules. Even in the countries with good primary immunization programs, the elderly people may still be vulnerable, either because of the incomplete primary vaccination or because the protective antibody levels decline over time. [24,25] Travellers often go for adventurous activities and thus are susceptible to injuries and wounds. One dose of TT every 5 years is enough to keep the antibodies level in the protective range.

- **Influenza**

The burden of influenza or simply flu in adults is unimaginable as a study has revealed that during peak periods of influenza activity circulation i.e. during the monsoon period, 20% of all hospital admissions have influenza positivity.[26] CDC recommends administering inactivated influenza vaccine to all persons 6 months of age and older annually.

- **Cholera**

Cholera continues to remain an important public health concern in developing countries. Globally, the true number of cholera cases is known to be much higher than reported.[27] A study indicates that 11 of the 28 States in India are endemic for cholera.[27] Cholera vaccines offer incomplete protection. Therefore, vaccination should never take the place of standard prevention and control measures.[28] Two vaccines (inactivated, oral vaccines) are available against cholera - Dukoral & ShanChol.[28] Primary immunization consists of two oral doses 7–14 days apart for adults and children aged 6 years and over. For children aged 2–5 years, three doses are recommended.[29] In studies of travellers to countries or areas reporting cholera outbreaks, vaccine was also found to induce approximately 50% short-term protection against diarrhoea caused by enterotoxigenic Escherichia coli (ETEC).[29]

- **Typhoid**

The incidence of typhoid and paratyphoid varies geographically, with south-central and south-east Asia having the highest incidence—typically exceeding 100 cases per 100,000 person-years for typhoid and with lower, variable rates for paratyphoid.[30] In one multicenter study, the annual incidence of typhoid per 100,000 children aged 5–15 years was 180 in North Jakarta, Indonesia, 413 in Karachi, Pakistan and 494 in Kolkata, India.[31] Commonly identified risk-factors include a lack of clean drinking water, poor sanitation, inadequate hygiene practices and low socio-economic status.[32,33] Three or four doses of orally-

administered, live-attenuated Ty21a provide about 50–70% protection for at least 7 years and are licensed in capsule form from 5 years of age or as a liquid formulation from 2 years of age.[34-36] The single-dose injectable Vi polysaccharide vaccine provides similar levels of protection for at least 3 years and is licensed from 2 years of age.[34,37,38]

- **Meningococcal disease**

Several major epidemics of meningococcal disease have been reported, pre-dominantly from the major cities, and particularly from New Delhi. This distribution may be because of overcrowding, vulnerability to the new strains, or suitable climatic conditions. Three kinds of meningococcal vaccines are available –conjugate, polysaccharide and serogroup-B. Either quadrivalent meningococcal conjugate vaccine (MenACWY) or meningococcal polysaccharide vaccine (MPSV4) is recommended for adults who are traveling to or residing in countries in which the disease is common.[39]

- **Pneumococcal disease**

There are 155.8 million clinical episodes of pneumonia globally, which contribute to approximately1.9 million deaths, 70% of which occur in Africa and south-east Asia. [9] ACIP recommends pneumococcal vaccination for the following adults: Age 65 years and older, age 19-64 years of age with: asthma, diabetes, lung, heart, or liver disease, or alcoholism, cigarette smokers and residents of long-term or chronic care facilities (e.g., nursing homes). A 23-valent vaccine is recommended in adults and prevents about 60-70% of the invasive disease. One dose of PCV13 is recommended for all adults 65 years or older who have not previously received the vaccine. However, the vaccination is not routinely recommended for adults and should be given only when some health conditions are there like hemoglobinopathies, immunodeficiencies, renal failure, organ transplant etc. [40]

- **Chicken pox**

Many studies have found out that though chicken pox is a disease of children but in tropical countries like India, the disease is common in adolescents and adults in whom it causes greater morbidity and mortality. Due to reasons not clearly known, the sero-conversion in tropical countries is low leading to such a disease trend. Two doses of the live-attenuated vaccine are about 90% effective at preventing chickenpox.[41]

- **Rabies**

In India, about 15 million people are bitten by animals, mostly dogs, every year and need post-exposure prophylaxis.[42] Since 1985, India has reported an estimated 25 000–30 000 human deaths from rabies annually (the lower estimate is based on projected statistics from isolation hospitals in 1985).[43] Tissue-culture vaccines with or without immunoglobulin are administered after a bite- depending upon the severity of bite. Though most of the health facilities in cities have a good supply of vaccines and immunoglobulins but if one is planning to travel to crowded places and small towns then the availability if the same might be a problem so pre-exposure prohylaxis should be considered.

4. Recommendations

Travellers should be well aware about their travel destinations and should be prepared beforehand to prevent any infectious disease. Studies suggest the need to improve travellers' awareness and adherence to recommendations.[44] Apart from taking the various vaccinations, care must be taken at all times and risky behavior should be avoided as far as possible.

Conflict of interest: None

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