J Infect Chemother xxx (2015) 1–5

Contents lists available at ScienceDirect

Journal of Infection and Chemotherapy

journal homepage: http://www.elsevier.com/locate/jic

Review article

Present situation and challenges of vaccinations for overseas travelers from Japan

Atsuo Hamada*, Shinji Fukushima

Travellers' Medical Center, Tokyo Medical University Hospital, Japan

ARTICLE INFO

Article history:
Received 9 January 2015
Received in revised form
6 March 2015
Accepted 9 March 2015
Available online xxx

Keywords:
Vaccine
Overseas traveler
Japanese
Travel medicine
Hepatitis A
Yellow fever

ABSTRACT

The vaccination rates of Japanese people travelling abroad are still relatively low compared to travelers from Europe and the U.S. The following 3 causes are considered to contribute to the low vaccination rates among Japanese. First point is the lack of attention to the prevention of diseases during overseas travel in Japanese people. Second point is the limited number of healthcare facilities where Japanese overseas travelers can receive vaccinations. Third, many vaccines administered to travelers are still unapproved in Japan. However, there appear to be recent developments in each matter. With these social changes, the vaccination rate should be improved by disseminating recognition of the importance of the travel medicine in Japan. This report summarizes the present situation of vaccination of Japanese overseas travelers and discusses the challenges to improving vaccination rates.

1. Introduction

An increasing number of Japanese people are travelling abroad every year. According to the Statistical Survey on Legal Migrants by Ministry of Justice, more than 18 million Japanese people traveled abroad in 2012. Many of them visited developing countries including some in Asia. Because the risk of acquiring infectious diseases is higher in such countries, vaccinations are recommended before leaving Japan. However, the vaccination rates of Japanese people travelling abroad are still relatively low because of various reasons. This report summarizes the present situation of vaccination of Japanese overseas travelers and discusses the challenges to improving vaccination rates.

2. Vaccines for overseas travelers

Many infectious diseases with the risk for people traveling overseas can be prevented by vaccination. Such vaccines for overseas travelers are called travelers' vaccines. These vaccines are administered preferentially for diseases that carry a high incidence and severity of illness [1]. Candidate vaccines are selected precisely by considering the style of traveler, including their age, area to be visited, intended duration of visit, and intended lifestyle at the site to be visited (Table 1). Information on the types of infectious diseases endemic to the area the traveler intends to visit is critical in selecting vaccines and is obtainable from the WHO website (http://www.who.int/ith/en/) and other sources. Typically, vaccines for hepatitis A, typhoid fever, and yellow fever are administered for short-term (less than 1 month) visits to developing countries. In addition, vaccinations for tetanus, hepatitis B, rabies, Japanese encephalitis, polio, and meningococcal meningitis are recommended for long-term travelers.

In many cases, overseas travelers are short on time before their departure and have to finish getting the required immunizations under time pressure. Therefore, administration of all the vaccines needs to be finished within a short period of time. Many inactivated vaccines must be given 3 times to complete immunization schedules (Table 2). For travelers who are short on time, however, a minimum of 2 doses (usually 1 month apart) should be given to exert a protective effect at the expected level. For travelers who have insufficient time for a normal administration schedule, different vaccines can be administered simultaneously. Simultaneous administration of more than two different vaccines does not reduce the effectiveness of each vaccine and does not synergistically increase the severity of adverse events.

* Corresponding author. Travellers' Medical Center, Tokyo Medical University Hospital, 6-7-1 Nishishinjyuku, Shinjyuku-ku, Tokyo, 160-0023, Japan. Tel.: +81 03 3342 6111; fax: +81 03 3347 5561.
E-mail address: a-hamada@tokyo-med.ac.jp (A. Hamada).

http://dx.doi.org/10.1016/j.jiac.2015.03.006
1341-321X/

Table 1
Vaccines recommended for Japanese adults traveling abroad. ○: Recommended; △: Recommended depending on circumstances.

Vaccine	Visit duration[a]		Areas for which vaccination is recommended	Travelers for whom vaccination is strongly recommended
	Short	Long		
Hepatitis A	○	○	Developing countries	Visitors to areas with poor sanitation
Typhoid fever (not approved in Japan)	△	○	Developing countries	Visitors to South Asia
Yellow fever	△	○	Tropical Africa South America	Visitors to countries that require a certificate of vaccination for entry
Tetanus	△	○	Entire world	Visitors who are at risk of suffering traumatic injury
Hepatitis B		○	Developing countries	Visitors who will be working as medical practitioners
Rabies	△	○	Developing countries	Visitors to areas where post-exposure prophylaxis is not readily available
Japanese encephalitis		△	China South-East and South Asia	Visitors to rural areas
Polio		△	South Asia Africa	Visitors who were born between 1975 and 1977 in Japan (Less effective vaccines were used in children during this period.)
Meningococcal meningitis		△	West Afric	Visitors intending to stay during the dry season

[a] Short: Less than 1 month.

3. Vaccination rate of Japanese overseas travelers

In the late 1990s, a survey of vaccination status among foreign travelers was conducted by a travel clinic at Kathmandu, Nepal [2]. The results show that only 5% of Japanese travelers were administered either hepatitis A or typhoid fever vaccine in contrast to 90% of travelers from Europe and the U.S., who were vaccinated against both.

Thus, this survey indicates overseas travelers from Europe and the U.S. have a very high rate of vaccine administration. For example, surveys conducted at the Munich Airport in Germany [3] and the J. F. Kennedy Airport in New York [4] indicates 59% ($n = 5776$) and 24% ($n = 404$), respectively, who departed for developing countries were administered hepatitis A vaccine. Moreover, a survey conducted at an airport in Australia indicates 31% and 26% of 340 overseas tourists received hepatitis A and typhoid fever vaccine, respectively [5].

Besides the survey of Japanese travelers in Kathmandu, Hitani et al. [6] investigated the vaccination status of 93 Japanese overseas tourists who departed for African countries or other areas in 2001–2002. The results show a high vaccination rate (71.4%) for yellow fever in contrast to a low rate for hepatitis A (1.8%). Between 2007 and 2008, Namikawa et al. [7] investigated 302 Japanese tourists and found that less than 10% had received any kind of vaccine. These studies collectively indicate a very low rate of vaccination among Japanese travelers before overseas departure.

In contrast, our surveys of Japanese people who stayed in developing countries for business show higher vaccination rates. Our studies indicate pre-departure administration rates with some kinds of vaccines tended to increase annually among Japanese travelers of age 16 years or more: 45.6%, 49.9%, and 55.8% in 1998, 2002, and 2005, respectively (Fig. 1) [8,9]. Japanese companies have recently placed stronger emphasis on the health management of employees residing abroad. Such efforts are considered to be the reason for the increasing administration rate of vaccines.

4. Reasons for the low vaccination rate among Japanese overseas travelers

The following 3 causes are considered to contribute to the low vaccination rates among Japanese overseas travelers.

4.1. Poor disease preventive attention during overseas travel

The lack of attention to the prevention of diseases during overseas travel is one reason for the low vaccination rate among Japanese people. According to surveys conducted at airports in Europe and the U.S. from 2002 to 2003, almost half of overseas travelers received health advice from healthcare professionals before departure [4,10]. In contrast, in Japan, similar surveys conducted from 2007 to 2008 show that only 2% of overseas travelers received such health advice before departure [7]. This low rate may be reflected by the lack of attention among Japanese people towards the prevention of diseases that may arise during overseas travel. This attitude may result in the low vaccination rate before departure.

Table 2
Number of immunizations in Japan.

Vaccine	Number of immunizations	Common immunization schedule	Effective period	Special instructions
Hepatitis A (inactivated vaccine)	3	Day 0, Day 14 to 28, Month 6 to 12	5 to 10 years	Foreign-made vaccines are given twice.
Typhoid fever (polysaccharide vaccine)	1	Day 0	3 years	Live attenuated vaccines are given 3 or 4 times.
Yellow fever (live attenuated vaccine)	1	Day 0	10 years	
Tetanus (toxoid)	3	Day 0, Day 28, Month 6 to 12	10 years	Administer once to those who have previously received basic immunization.
Hepatitis B (DNA vaccine)	3	Day 0, Day 28, Month 6 to 12	10 years	
Rabies (inactivated vaccine)	3	Day 0, Day 28, Month 6 to 12	2 to 5 years	Foreign-made vaccines are given on days 0, 7, and 21 to 28.
Japanese encephalitis (inactivated vaccine)	3	Day 0, Day 7 to 28, Month 6 to 12	4 years	Adults are vaccinated once or twice.
Polio (inactivated vaccine)	4	Day 0, Day 28, Month 2, Month 12	10 years	Adults are vaccinated once or twice.
Meningococcal meningitis (conjugate vaccine)	1	Day 0	3 to 5 years	Polysaccharide vaccine is also given once.

Please cite this article in press as: Hamada A, Fukushima S, Present situation and challenges of vaccinations for overseas travelers from Japan, J Infect Chemother (2015), http://dx.doi.org/10.1016/j.jiac.2015.03.006