HEPATITIS A VACCINATION POLICY FOR TRAVELLERS TO EGYPT IN EIGHT EUROPEAN COUNTRIES, 2004

M Ward[1,4], K Borgen[1,4], A Mazick[2,4], M Muehlen[3,4]

In 2004, an outbreak of hepatitis A occurred in European tourists returning from Egypt. The reported hepatitis A attack rates varied considerably between tourists from different European countries. To determine the reason for this divergence in attack rates, a survey was undertaken with the following objectives: (a) documentation of national hepatitis A prevention policies for people travelling to Egypt and (b) documentation of hepatitis A reporting practices in these countries. A questionnaire was compiled and distributed to 13 European countries. All eight of the countries that responded had produced guidelines for the prevention of travel-associated hepatitis A. Between 2001-2003, 40% (range 4-51) of hepatitis A cases reported annually were associated with travel abroad. This occurred despite the fact that all countries recommended active vaccination with hepatitis A vaccine for people travelling to Egypt for holidays. There was no standard case definition for reporting confirmed cases in the countries that reported hepatitis A cases. As it is likely that travel-associated infections will increase as more people take overseas holidays, innovative ways to increase the number of travellers who seek and adhere to appropriate medical advice prior to travel must be explored. In addition, we recommend the use of the European Commission case definition for notification of confirmed cases of hepatitis A.

Euro Surveill 2006;11(1): 37-9 Published online January 2006
Key words: Hepatitis A, surveillance, travel associated infection, vaccination

Introduction

Hepatitis A virus (HAV) has worldwide distribution and causes a systemic infection that attacks the liver. In children under 6 years most infections are asymptomatic but in older children and adults, infection is usually symptomatic and jaundice occurs in up to 70% of cases [1,2]. In older and vulnerable people (including people with pre-existing liver disease, the immunocompromised and injecting drug users) hepatitis A can cause serious morbidity and mortality [3]. In Europe, there are three main patterns of infection with HAV: sporadic infection in travellers to countries of high endemicity, common source outbreaks, and large community outbreaks associated with faecal-oral transmission [4].

Travel-associated hepatitis A is the most frequent vaccine preventable infection in non-immune travellers to countries of high endemicity [5]. Passive immunisation with immunoglobulins can be used, close to departure date, to protect travellers during their period of stay in an endemic area. However, this option has a number of shortcomings: the antibody titre that must be achieved for one to be protected is undetermined, the protection is of limited duration, and there is also concern about the safety of blood products [6]. Consequently, this option has been superseded by active vaccination with hepatitis A vaccine since it became available in 1992.

In August 2004, an outbreak of hepatitis A occurred in tourists from Germany and eight other European countries who had stayed in a hotel in the Red Sea area of Egypt. A total of 351 cases including 271 primary and 7 secondary infections were reported in Germany, and 73 cases (60 primary and 13 secondary infections) were reported from other European countries. The subsequent case-control investigation implicated fruit juice as the likely vehicle of infection in the outbreak [7].

The attack rate, based on the proportion of HAV infected hotel guests notified nationally from the total number of guests per country as recorded by the hotel staff, during June and July, varied between countries from 4.6% in Germany to 10.5% and 14.6% in the Netherlands and Austria, respectively. Among the hypotheses for this divergence in attack rate were differences in risk behaviour, variations in national vaccination policy and practice, and variations in the sensitivity of hepatitis A reporting in the various countries. In order to explore these hypotheses further, a survey was undertaken with the following objectives: (a) assessment of the policies for hepatitis A prevention for people travelling to Egypt in a selection of European countries and (b) documentation of hepatitis A reporting practices in these countries in order to identify reasons for divergence in attack rates.

Methods

This survey targeted countries with hepatitis A cases staying in the hotel linked to the hepatitis A outbreak during June and July 2004. A questionnaire was developed in collaboration with epidemiologists from Sweden, Denmark, the Netherlands and Germany. The questionnaire covered the following areas:

1. Current vaccination recommendations for travel to Egypt, agencies producing and implementing the recommendations, cost of vaccine, health insurance cover for vaccination and the role of travel agents in hepatitis A prevention.
2. Description of hepatitis A reporting within the countries, reporting category of hepatitis A (ie, whether mandatory or not), case definition used, reporting personnel, burden of travel-associated hepatitis A with particular reference to travel-associated with Egypt between 2001-2003, and sensitivity of reporting system.

The questionnaire was sent by email in September 2004 to lead epidemiologists in the targeted countries. Two follow-up reminders were sent to improve the response rate. Results were returned to all participants for validation and feedback.

Results

Eight of the13 targeted countries responded to the questionnaire [TABLE 1]. All eight countries had guidelines for prevention of travel-associated HAV. These guidelines were produced by various institutes working either alone or in collaboration: national institutes for infectious disease surveillance (N=4), Ministry of Health (N=3), institutes of tropical medicine (N=1) national vaccination committees (N=2) Federal Office of Public Health (N=1) and travel clinics/ networks (N=3).

Municipal Public Health Department, specialised travel clinics, occupational health services and general practitioners were involved in the implementation of these guidelines [TABLE 2].

1. National Institute for Public Health and the Environment, Bilthoven, the Netherlands
2. Statens Serum Institut, Copenhagen, Denmark
3. Robert Koch-Institut, Berlin, Germany
4. European Programme for Intervention Epidemiology Training (EPIET)

All eight countries recommended active vaccination against HAV for travel to regions where HAV was endemic, including Egypt. In addition, some countries recommended immunoglobulin in specific circumstances (children < two years, immunocompromised persons and pregnant women). Only in the Netherlands were travel company representatives obligated to inform travellers of risk of hepatitis A associated with travel to Egypt. The median estimated lowest cost for one adult HAV vaccine administration was €37 per dose (range €18-55) [TABLE 2]. In none of the eight countries was the cost of travel-associated HAV vaccination reimbursable by the medical insurance, used by the majority of residents. However, in England & Wales administration of vaccine was free of charge in the National Health Service.

There was no information available on the percentage of travellers to Egypt vaccinated against hepatitis A. In all responding countries except France, hepatitis A was a statutorily notifiable disease. Six countries reported confirmed cases of hepatitis A on the basis of clinical symptoms and laboratory confirmation of infection [TABLE 3]. Between 2001-2003, the average proportion of HAV infection that were travel-associated varied considerably between the five countries that provided information, England & Wales (4%), Germany (32%), Switzerland (40%), the Netherlands (45%) and Denmark (51%). In the latter four countries 2% of travel-associated HAV infection was reported as being related with travel specific to Egypt. No country had undertaken a national assessment of completeness of hepatitis A reporting.

Discussion

These results highlight many similarities in policy for travel-associated hepatitis A infection in Denmark, England & Wales, France, Germany, Ireland, the Netherlands, Spain and Switzerland. Hepatitis A vaccine is incorporated into vaccination recommendations for travellers in all these countries. In addition to hygiene measures, these countries recommend HAV vaccine for holiday travel to areas where hepatitis A is endemic, including Egypt, which is in line with recommendations of most expert bodies including the World Health Organization (WHO), the United States Centers for Disease Control and Prevention, and Viral Hepatitis Prevention Board (www.vhpb.org) [6]. However, despite this consistency in recommendations the burden of travel-associated HAV infection in five of the respondent countries was considerable.

The cost implications of appropriate vaccination may have acted as a financial disincentive jeopardising optimal vaccine uptake. The reported incidence of hepatitis A infections in respondent countries is uniformly below the average of 10/100 000 reported in the WHO European region [8]. Consequently, most of the adult population remain susceptible to acquiring hepatitis A when travelling to highly endemic areas, including those staying in luxury hotels [9].

While currently HAV infection is not notifiable in France, an evaluation of the French surveillance system for hepatitis A in 1998-2000 recommended mandatory notification based primarily on laboratory surveillance [10]. Among the seven countries where hepatitis A was statutorily notifiable, the case definition for reporting confirmed cases was not uniform. In addition, the personnel who reported were not consistent between countries. Thus, direct comparison of hepatitis A incidence between countries may not be valid. In order to improve the comparability of data from different member states, the European Commission (EC) produced a decision (2002/253/EC) in 2002, stipulating case definitions for reporting infectious diseases. The recommended case definition for confirmed hepatitis A is a combination of clinical symptoms and laboratory confirmation.

Table 1

Organisations producing guidelines for travel associated infectious diseases, in eight European countries, 2004

Country	National institutes disease surveillance	Ministry of health	Institutes of tropical medicine	National vaccination committees	Federal office of public heath	Travel clinics/ Travel health network
Denmark	x					
England & Wales	x	x				x
France		x				
Germany			x	x		x
Ireland	x			x		x
The Netherlands	x					
Spain		x				
Switzerland					x	

Table 2

Organisations administering hepatitis A vaccine, preventive measures for two weeks travel to Egypt and cost of hepatitis A vaccine in eight European countries, 2004

	Vaccine administration personnel*				Hepatitis A preventive measures		
Country	MPHD	STC	OHC	GP	Hepatitis A vaccination	Immunoglobulin	Cost (€)^ of vaccine
Denmark	x	x		x	Yes	Special risk groups	55
England & Wales	x	x	x	x	Yes		36
France		x	x	x	Yes		18
Germany	(x)§	x	x	x	Yes	Special risk groups	54
Ireland	x	x	x	x	Yes		27
The Netherlands	x	x	x	x	Yes	Special risk groups	25
Spain		x	x		Yes	< 2 years	31
Switzerland		x		x	Yes		47

* MPHD: municipal public health department, STC: specialist travel clinics, OHC: occupational health services, GP: general practitioners

§ only in some MPHDs

^ Cheapest option for one adult dose

Table 3

Notification category, case definition and notification personnel for hepatitis A in eight European countries, 2004

		Notified cases HAV/100 000	Case definition*			Notification personnel	
Country	Mandatory notification	Averaged 2001-2003	A	B	C	Medical/ nursing	Laboratory
Denmark	Yes	1.36	x x	x	 x	yes	no
England & Wales	Yes	1.96	x			yes	no
France	No	N/A	-	-	-	-	-
Germany	Yes	2.06	x x	x	 x	yes	yes
Ireland	Yes	1.40	x	x		yes	yes
The Netherlands	Yes	1.60	x x	x	 x	yes	yes
Spain	Yes	1.92	x	x		yes	no
Switzerland	Yes	2.30	 x x	x x	 x 	yes	yes

* Confirmed case: A: clinical symptoms, B: laboratory confirmation, C: epidemiological link to serologically confirmed case. The number of lines per country corresponds to various combinations of clinical, laboratory and epidemiological criteria used for notification of hepatitis A nationally

Uniform use of such a case definition for confirmed cases of hepatitis A would facilitate more accurate comparison between countries. As a result of a feasibility study, EUROHEP.NET (www.eurohep.net) has made a similar observation. However, as with all notifiable infectious diseases, country-specific factors, such as the tendency of people to seek medical care, different diagnostic methods in use, and the percentage of physicians sending in notifications, will probably continue to have an impact on reported incidence [11].

Although all eight countries recommended active vaccination against hepatitis A for travel to endemic areas, a considerable proportion of reported hepatitis A was travel-associated, indicating that a large number of travellers continue to set out on their journeys inadequately protected against hepatitis A. Appropriate medical advice and efficacious vaccines against hepatitis A virus are readily available, and so the risk of hepatitis A should be avoidable, but our survey supports similar reported findings of a general reluctance by travellers to seek and adhere to timely medical advice [11,12,13,14,15,16]. Such reluctance may be partly explained by the low risk of hepatitis A associated with travel that seems to be generally perceived by holidaymakers. While travel agents should be encouraged to take a more active role in informing travellers of travel-associated health risks, this policy is potentially limited by the increasing number of travellers who use the internet to plan and book their holidays. An automated reminder of appropriate vaccination recommendations linked to internet travel ticket bookings to hepatitis A endemic destinations would be a beneficial adjunct to such increased involvement by travel agencts.

There is consistency in hepatitis A vaccine recommendations for travellers to HAV endemic areas from the European countries that responded to this questionnaire. Despite this, the burden of travel-associated infection is considerable. Consequently, innovative ways to increase the number of travellers who seek and adhere to appropriate medical advice prior to travel must be explored. In addition, there remain differences in reporting practices from HAV infection between countries. In order to minimise this variation we also recommend use of the EC case definition for notification of HAV infection. Active steps must be taken by public health authorities to improve their utilization of health services and prevent the accrued health risk for these travelers.

Acknowledgements

E Couturier (France), V Masserey (Switzerland), M Di Renza (Ireland), L Thornton (Ireland), A Bosman (the Netherlands), V Bremer (Germany), K Alpers (Germany) J Jonsson (Spain), J Granerod (England and Wales), M Howitz (Denmark), K Mølbak (Denmark)

References

1. Morris M, Gay N, Hesketh L, Morgan-Capner, Miller E. The changing epidemiological pattern of hepatitis A in England and Wales. Epidemiol Infect. 2002 Jun;128(3):457-63.
2. Centres for Disease Control and Prevention. Prevention of hepatitis A through active or passive immunisation: recommendations of the Advisory Committee on Immunisation Practices (ACIP). MMWR. 1999;48 (No. RR-120: [inclusive page numbers].
3. O'Donovan D, Cooke RPD, Joce R, Eastbury A, Waite J, Stene-Johansen K. An outbreak of hepatitis A among injecting drug users. Epidemiol Infect. 2001 Dec;127(3):469-73.
4. Maguire HC, Heptonatall J, Begg NT. The epidemiology and control of hepatitis A. Comm Dis Rev. 1992;2:R114-7.
5. Steffen R. Banos A, de Bernardis C. Vaccination priorities. International Journal of Antimicrobial Agents. 2003;21;175-80.
6. Vaccination options for last-minute travellers in need of travel-related prophylaxis against hepatitis A and B and typhoid fever: a practical guide. Zuckerman J, Van Damme P, Van Herck K, Loscher T. Travel Medicine and Infectious Disease. 2003;1:219-26.
7. Frank C, Walter J, Muehlen M, Jansen A, van Treek U, Hauri AM et al. Large outbreak of hepatitis A in tourists staying at a hotel in Hurghada, Egypt, 2004 –orange juice implicated. Eurosurveillance Weekly.2005;10 (23), 09/06/2005. http://www.eurosurveillance.org/ew/2005/050609.asp
8. Van Damme P, Bell B. Meeting Report. Hepatitis A: how to match prevention strategies to changing epidemiology. Vaccine 2001;19: 999-1002
9. R. Steffen, M. A. Kane, C. N. Shapiro, N. Billo, K. J. Schoellhorn, P. van Damme. Epidemiology and prevention of hepatitis A in travelers JAMA, Sep 1994; 272: 885 - 889.
10. E. Delarocque-Astagneau, E. Cordeiro, V. Vaillant, M. Valenciano. Évaluation d'un système pilote de surveillance pour l'hépatite A, France 2001 [Evaluation of a pilot surveillance system for hepatitis A, France 2001 - French]. Bull Epidem Hebd. 2005;5:19-20.
11. Ternhag A, Tegnell A, Lesko B, Skaerlund K, Pentinnen P. Basic Surveillance Network, a European database for surveillance data on infectious diseases. Euro Surveill. 2004;9:1-2.
12. Van Herck K, Van Damme P, Castelli F, Zeckerman J, Nothdurft H, Dahlgren A, et al., Knowledge, attitudes and practices in travel-related infectious diseases: the European airport survey. J Travel Med. 2004 Jan-Feb;11(1):3-8.
13. Zuckerman J, Van Damme P, Van Herck K, Loscher T. Vaccination options for last-minute travellers in need of travel-related prophylaxis against hepatitis A and B and typhoid fever: a practical guide. Travel Medicine and Infectious Disease. 2003;1:219-26.
14. Hamer D, Connor B. Travel health knowledge, attitudes and practices among United States Travelers. J Travel Medicine, 2004;1: 23-6.
15. Toovey S, Jamieson A, Holloway M. Travel health knowledge, attitudes and practice on the prevention of infectious diseases: a study from Johannesburg International Airport. J Travel Medicine. 2004;1:16-22.
16. Wilder-Smith A, Khairullah NS, Song JH, Chen CY, Torresi J. Travel health knowledge, attitudes and practice among Australasian travelers. J Travel Medicine. 2004;1:9-15.