Disponible en ligne sur
ScienceDirect
www.sciencedirect.com
Elsevier Masson France
EM|consulte
www.em-consulte.com
Médecine et maladies infectieuses
Médecine et maladies infectieuses xxx (2016) xxx–xxx

General review

Hajj-associated infections☆

Infections liées au Hadj

A. Salmon-Rousseau [a], E. Piednoir [a], V. Cattoir [b], A. de La Blanchardière [a,*]

[a] *Service des maladies infectieuses et tropicales, CHU de Caen, avenue Côte-de-Nacre, 14033 Caen cedex 9, France*
[b] *Service de microbiologie, CHU de Caen, avenue Côte-de-Nacre, 14033 Caen cedex 9, France*

Received 16 July 2015; received in revised form 6 January 2016; accepted 8 April 2016

Abstract

Background. – The Hajj is the largest annual mass gathering event in the world, thus favoring the transmission of various infections: 183 different nationalities, high temperatures, coincidence with the start of the flu season in the Northern hemisphere, a long barefoot walk, tent-type accommodation, communal toilet facilities, absence of food control, and sharing of razors. Infections are the first cause of hospital admission, which often occurs in the home country of pilgrims.

Methods. – Literature review on PubMed from 1952 to November 2015 on the epidemiology and prevention of infections contracted during the Hajj, using the keywords "Hajj" and "infections".

Results. – Respiratory tract infections, ENT infections, influenza, pyogenic pneumonia, whooping cough, and tuberculosis are most frequently observed during the Hajj. Outbreaks of meningococcal meningitis have been reported in pilgrims and their contacts. Waterborne infections such as gastroenteritis and hepatitis A are common, despite the improvement of health conditions. Pyoderma and furuncles are also frequently observed. Recently, dengue fever, Alkhumra hemorrhagic fever, and Rift Valley fever have emerged but no case of MERS-coronavirus, appeared in Saudi Arabia in 2012, have yet been observed during the 2012–2014 Hajj.

Conclusion. – Prevention is based on compulsory meningococcal vaccination, vaccination against seasonal influenza and pneumococcal infections for pilgrims at high risk of contracting the infection, and on vaccination against hepatitis A. Updating immunization for diphtheria/tetanus/poliomyelitis/pertussis and measles/mumps is also crucial and pilgrims must comply with hygiene precautions.
© 2016 Elsevier Masson SAS. All rights reserved.

Keywords: Hajj; Infections; Mecca; Pilgrimage; Vaccination

Résumé

Contexte. – Le Hadj, plus grand rassemblement au monde, est propice aux infections : 183 nationalités, température élevée, coïncidence avec la grippe en Occident, longue marche pieds nus, logement en tentes, toilettes collectives, absence de contrôle sanitaire alimentaire, rasoirs à usage multiple. Les infections, qui souvent n'apparaissent qu'après le retour, sont la première cause d'hospitalisation.

Méthodes. – Revue systématique de la littérature consacrée à l'épidémiologie et à la prévention des infections contractées lors du Hadj, de 1952 à novembre 2015, en combinant les termes « Hadj » et « infections ».

Résultats. – Lors du Hadj, les infections respiratoires dominent, avec les infections ORL, la grippe, les pneumopathies à pyogènes, la coqueluche et la tuberculose. Des épidémies de méningite ont été rapportées chez les pélerins et leurs contacts. Les infections d'origine hydriques (gastroenterites, hépatites aiguës) demeurent fréquentes malgré l'amélioration des conditions d'hygiène. Les pyodermites et furoncles sont fréquents. Depuis quelques années, la dengue, la fièvre hémorragique Alkhumra et la fièvre de la vallée du Rift émergent. La menace du MERS-coronavirus, apparue en Arabie saoudite en 2012, n'a pas été confirmée au cours des Hadj de 2012 à 2014.

☆ This study was presented at the RICAI, Paris, in November 2013.

* Corresponding author.
E-mail addresses: salmonrousseau@hotmail.fr (A. Salmon-Rousseau), emmanuel.piednoir@ch-avranches-granville.fr (E. Piednoir), cattoir-v@chu-caen.fr (V. Cattoir), delablanchardiere-a@chu-caen.fr (A. de La Blanchardière).

http://dx.doi.org/10.1016/j.medmal.2016.04.002
0399-077X/© 2016 Elsevier Masson SAS. All rights reserved.

Please cite this article in press as: Salmon-Rousseau A, et al. Hajj-associated infections. Med Mal Infect (2016), http://dx.doi.org/10.1016/j.medmal.2016.04.002

Conclusion. – La prévention repose sur la mise à jour du calendrier vaccinal (DTP, coqueluche, rougeole, oreillons, rubéole), la vaccination obligatoire antiméningococcique, mais également sur les vaccinations antigrippale et antipneumococcique pour les personnes à risque, la vaccination contre l'hépatite A, et sur les précautions d'hygiène que les pèlerins, bien que souvent âgés et atteints de comorbidités, adoptent de manière irrégulière.
© 2016 Elsevier Masson SAS. Tous droits réservés.

Mots clés : Hadj ; Infections ; La Mecque ; Pèlerinage ; Vaccination

1. Introduction

The origins of the Hajj date back to 2000 B.C. when Ismael, son of the prophet Abraham and Abraham's servant Hager were stranded in the desert. The Angel Gabriel came down to Earth and created a spring of fresh water for the baby. Upon orders from God, Abraham is said to have built a monument on the site of the spring, called the Kaaba. In 630 A.D., the Prophet Muhammad led a group of Muslims there during the first official Hajj.

From the 8th to the 13th day of the 12th month of the Islamic calendar, Mecca, Islam's holiest city, becomes particularly vital; pilgrims making their once-in-a-lifetime 5-day excursion to the site.

Pilgrims have to be in the state of Ihram ("state of purification") before reaching Mecca: they bathe, wear the white Ihram garment, refrain from using scented toilet articles, having sexual intercourse, shaving, cutting their hair and nails. They then begin a long walk barefoot over rough terrain. The climate is extreme, with daytime temperatures that can reach 45 °C in the summer, and night temperatures that occasionally fall to 10 °C (rituals include a night under the stars), and can coincide with the influenza season in the Northern Hemisphere. They typically stay in tent-type accommodation; 50 to 100 pilgrims share the same domestic facilities and move around by buses or on foot. The end of the Hajj is marked by the sacrifice of cattle and by men shaving their hair, using mandatory disposable razors [1,2].

Completion of all of the mandated rituals is believed to guarantee pilgrims a place in heaven as well as the title of Hajji; a coveted and admired title among Muslim communities around the world. Hajj is the fifth pillar of Islam, after the profession of faith, fasting during Ramadan, charitable giving, and ritual prayer.

As there are approximately 1.6 billion Muslims worldwide and that they are all obliged to attend the Hajj at least once in their lifetime, this event has become the largest annually recurring mass gathering event in the world, with an attendance that reached 3 million pilgrims in 2011. Most pilgrims are men (64.3%) coming from over 183 different countries [3,4]: 92% arriving by air, 7% travelling overland, 1% by sea; hence, a huge diversity in terms of ethnic origin and socioeconomic status [1]. Crowd densities can reach 7 individuals per m^2 during the Hajj. Thus, quotas have been set by the Organization of Islamic Cooperation to limit the event to 1000 pilgrims/1 million inhabitants [1]. This figure corresponded, for France, to around 24,000 visas for the 2013 Hajj [5].

Although Muslims are enjoined to undertake the Hajj only when adequately healthy, pilgrims are often middle-aged or elderly before they can afford the journey, and they often present with comorbidities [5].

Table 1
Number of deaths and mortality rate during the 2002–2006 Hajj [7].
Nombre de décès et taux de mortalité au cours du Hadj, de 2002 à 2006 [7].

	Pilgrims	Deaths	Overall mortality (per 100,000 pilgrims)
February 2002	2,041,129	495	24.2
January 2003	2,012,074	766	38.1
January 2004	2,164,469	651	30.1
January 2005	2,258,050	1084	48.0
December 2006	2,378,636	779	32.7

Various epidemics during the 19th and the early 20th centuries (cholera, smallpox, plague, typhus) have led European states and now modern-day Saudi Arabia to an efficient organization of the pilgrimage.

Today, the Saudi state arranges pro bono visas, free healthcare services, security services, crowd control, and licensed slaughterhouses and barbers to ensure that all aspects of pilgrimage rituals are safely conducted without any major incident throughout the 5-day Hajj.

Health-related risks during the Hajj are two-fold: non-communicable diseases and infectious diseases. With regard to non-communicable diseases:

- ischemic heart disease is the second cause of hospital admission (12%) during the Hajj after pneumonia [6];
- trauma is the third cause (9%) [6]. The long hours of walking, waiting or travelling, disrupted daily rhythms, pushing and crowd movements, and poor compliance with the use of seatbelts in vehicles may contribute to the physical exhaustion of already weakened people, along with sometimes fatal falls. In 2006, 380 pilgrims died in a stampede [2];
- heat exhaustion and heatstroke are leading causes of morbidity and mortality, particularly in the summer due to the absence of air conditioning, arduous physical rituals, reduced shade, and inadequate fluid intake. Men are more exposed because they do not have the right to cover their heads [2].

According to the ministry of Health of Saudi Arabia, Hajj-related mortality between 2002 and 2006 ranged from 24 to 48 individuals per 100,000 pilgrims (Table 1) [7]. Causes of death in 2006 were reported in a study of 541 pilgrims who died in Mecca and other holy places during the Hajj (Table 2): 56% of documented deaths were of cardiovascular origin and

Download English Version:

https://daneshyari.com/en/article/5673376

Download Persian Version:

https://daneshyari.com/article/5673376

Daneshyari.com