

Hepatitis A virus in a medical setting in Madagascar: a lesson for public health

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Human hepatitis A virus (HAV) is the major cause of acute hepatitis throughout the world and causes substantial morbidity in both developed and developing countries (Gharbi-Khelifi *et al.*, 2007).

HAV is transmitted mainly via a faecal-oral route, but indirect transmission is also possible as HAV can survive in water. Numerous waterborne epidemics have been observed following consumption of contaminated drinking water (Yokoi *et al.*, 2001), food produce watered with untreated water (Dendinger *et al.*, 2001; Robertson *et al.*, 2000), or shellfish (Legeay *et al.*, 2000). Madagascar is an island country in the Indian Ocean off the coast of Southeast Africa. The nation comprises Madagascar's Island (the fourth-largest island of the world), as well as numerous smaller peripheral islands. From 1897 the island was absorbed into the French colonial empire, until independence in 1960. Madagascar is classified in the Human Development Report 2013 of the United Nations Development Programme as a country at Low

Human Development. Few data are available on the HAV epidemic in Madagascar. Only a seroprevalence study in the capital city has been conducted (Raharimanga *et al.*, 2008). This study observed an overall anti-HAV seroprevalence of 92.2% in inhabitants under 25 years old.

In developing countries sanitary and hygienic conditions are usually scarce and low economic status, high crowding and inadequate water treatment contribute to a high endemicity pattern; the majority of children acquire infection (often asymptomatic) during early childhood (Letaief *et al.*, 2005; Franco *et al.*, 2012).

We describe a case of acute HAV infection in a 20-year-old man involved in a two-week medical workcamp in St. Damien Hospital of Ambanja, North Madagascar. At the time of his presentation at our clinical center in Rome the man had mild flulike symptoms of anorexia, nausea and vomiting, fatigue, malaise, low-grade fever (usually <39.5°C), myalgia, and moderate headache. In the last days before hospital admission the patient reported dark urine (bilirubinuria) and pale stools. An epidemiological investigation at the time of hospitalization was conducted on admission and the patient revealed a recent trip in Madagascar where he was involved as a worker in a clinical ward. Laboratory testing for liver evaluation (total protein, albumin, globulin, ferritin, fractionated bilirubin, alkaline phosphatase and alpha-fetopro-

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tein, Anti-HAV IgM) revealed acute HAV infection. At the time of travel, HAV vaccination was offered, and information was provided on hygienic precautions. The patient disregarded the vaccination and revealed he had drunk many “cocktails” with ice and had eaten raw vegetables. Another possible risk factor could be that because of his medical activity the subject had daily contact with school pupils. Phylogenetic analysis classified our sequence as HAV subtype 1B (data not shown), and as closely related to the genotype from France.

Despite the accumulation of knowledge on the epidemiology and prevention of HAV infection in the world, in some endemic countries, and in travellers in these regions, education in public health has probably not been implemented. Good sanitation with a special focus on personal hygiene (i.e. careful hand-washing) and more attention to drinking water and ice usage are important and easily feasible. This reported case in a young man involved in a medical workcamp in Madagascar can be an important “public health lesson” that can help remove the few remaining shadows on this easily preventable infection. From the public health point of view, it is important to provide quality standard water treatment and distribution systems whenever possible, whereas in endemic countries where it is more difficult to sustain these measures preventive vaccination is strongly recommended. Furthermore, the specific setting of a medical activity carried out by Western subjects in a wide seroprevalent anti-HAV population like school pupils, gives a clear indication for a strong compliance with general hygienic precautions in medical practices.

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