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Prevention of Hepatitis A Virus Infection, Need to Vaccinate or Not?

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Date of Submission: Dec 17, 2012

Date of Acceptance: Dec 25, 2012

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How to cite this article: Elizee PK, Alavian SM. Prevention of hepatitis a virus infection, need to vaccinate or not? *Int J Prev Med* 2013;4:863-5.

Hepatitis A virus (HAV) infection is one of the most common causes of acute viral hepatitis as well as a major health problem in the worldwide especially in the developing countries. Annually, 1.5 million of symptomatic cases of hepatitis A are estimated worldwide, but HAV seroprevalence data indicate that 10 million infections occur each year.^[1] HAV is an acute, self-limiting infection of the liver that usually spread through oral-fecal rout.^[2] Studies in various communities have shown that HAV prevalence rises with age and the risk of fulminant hepatitis associated with HAV infection is more in adolescence.^[3] The prevalence of virus differs significantly in different parts of the world according to the geographic area, prevailing hygiene, sanitary conditions and socioeconomic levels and other development indicators.^[4] In high endemic area, majority of people are infected with HAV in childhood while disease usually occurs asymptomatic, this explains why clinical hepatitis A is uncommon. On the other hand, in low or non-endemic area where people do not have natural immunity against HAV, they are susceptible to be infected with HAV that can be more symptomatic even fatal^[5] and in rare cases may need to liver transplantation.^[6,7]

In Iran, we do not have surveillance system for reporting acute HAV infection yet but the seroprevalence of HAV infection in cross sectional

studies was determined to be different across regions of Iran and different population based study. First time in 1980, Farzadegan *et al.* reported an almost complete immunity against HAV among adults after 30 years old.^[8] Tow decades later, in 2004 among children less than 15 years old who visited in pediatric hospitals of Tehran anti HAV antibodies determined 22.3%.^[9] Later, a number of articles reported different prevalence in variety of regions. In northern of Iran, Babol among HBV carriers, HAV Ab detected high increasing with age (59.4-97.5%),^[10] also in same region anti HAV Ab prevalence reported in Sari 38.9%^[11] and in Savadkoh 19.20%^[12] but it increases 98.6% in Golestan province.^[13] But in Isfahan province, the HAV prevalence was only 8.33% among 816 subjects over 6 years old, much lower prevalence than reported others.^[14] Later in 2006 in a multicenter study, the researchers found the seroprevalence of HAV in Tehran, Golestan and Hormozgan provinces was 85%, 99%, and 96%.^[15] Sofian *et al.* in 2010 detected 61.6% of total anti-HAV in capital city of Tehran^[16] but recently published article reported 90% respectively.^[17] In a study from Qazvin among blood donors in range of 17-60 years old, Ramezani reported 94.9% seropositivity.^[18] in Southern of Iran, Fars province 88.2%,^[19] and among HCV infected people in Isfahan province 94.9% has been demonstrated.^[20]

Previous studies have shown that improvement of sanitation in some countries in the high-endemic area reduced the rate of HAV infection in children, although this seems to be desirable, reports exist on higher risk of outbreaks among the adult population who have not been exposed to HAV in their life before and are, therefore not immune.^[4] Recently, Campagna *et al.* explained a significant declining trend of HAV epidemiology in an area of High endemicity of Italy. They declared the age specific seroprevalence has been found in people under 30 years; 61% in 1988, 33% in 1995 and 8.9% in 2005-2008.^[21] In future, similar studies in Iran can help in designing vaccination guidelines customized according to HAV prevalence in various parts of the country and different populations.

Today, an effective strategy to protect non-immune populations against HAV infection is necessary. Active immune prophylaxis by vaccination is the most important strategy for preventing disease at the national level.^[22] This vaccine can induce lifelong immunity and is used in many developed countries, but this vaccine is not yet readily available in some developing countries. Also, it can control outbreaks in overcrowded, susceptible populations.^[23] For example, vaccination has been indicated for travelers from low endemic areas to regions with higher prevalence of HAV.^[24] In Iranian vaccination program, preventive immunization against HAV is not mandatory yet. In developing countries such as Iran following improvements in food and water hygiene, children's immunity has reduced, therefore hepatitis A vaccination should be considered and an immune survey should be done every few years to help health managers decide when to provide universal vaccination against the HAV.^[23] In conclusion, the seroprevalence of HAV still appears to be too elevated for recommending routine vaccination in the general population. However, the trend towards a lower prevalence in younger age groups points towards the possible benefit of vaccination in this subgroup.

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Source of Support: Nil, **Conflict of Interest:** None declared.