

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

Pegah Karimi Elizee¹, Seyed-Moayed Alavian^{1,2}

¹Tehran Hepatitis Center, Tehran, Iran, ² Research Center for Gastroenterology and Liver Disease, Baqiyatallah University of Medical Sciences, Tehran, Iran

Date of Submission: Dec 17, 2012

Date of Acceptance: Dec 25, 2012

Correspondence to:

Prof. Seyed-Moayed Alavian,
Baqiyatallah Research Center for
Gastroenterology and Liver Diseases,
Grand Floor of Baqiyatallah Hospital,
Mollasadra Ave., Vanak Sq,
P. O. Box: 14155-3651, Tehran, Iran.
E-mail: editor@hepatmon.com

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.

REFERENCES

1. Wasley A, Fiore A, Bell BP. Hepatitis A in the era of vaccination. *Epidemiol Rev* 2006;28:101-11.
2. Wasley A-M, Feinstone SM, Bell BP. Hepatitis A virus. In: 7th, editor. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases Churchill Livingstone Elsevier; 2010. p. 2367-89.
3. Alavian SM. Hepatitis a in developed country, the result should interpret carefully. *Gut Liver* 2011;5:395-6.
4. Mahboobi N, Safari S, Alavian S. Hepatitis A virus in Middle East countries: More evidence needed. *Arab J Gastroenterol* 2010;11:1-2.
5. Hepatitis A vaccine. 2003 [Updated 04 Feb 2003]; Available from: <http://www.who.int/vaccines/en/hepatitisa.shtml#hepa>.
6. Ferreira CT, Vieira SM, Kieling CO, Silveira TR. Hepatitis A acute liver failure: Follow-up of paediatric patients in southern Brazil. *J Viral Hepat* 2008;15:66-8.
7. Gotthardt D, Riediger C, Weiss KH, Encke J, Schemmer P, Schmidt J, *et al.* Fulminant hepatic failure: Etiology and indications for liver transplantation. *Nephrol Dial Transplant* 2007;22:viii5-viii8.
8. Farzadegan H, Shamszad M, Noori-Arya K. Epidemiology of viral hepatitis among Iranian population: A viral marker study. *Ann Acad Med Singapore* 1980;9:144-8.
9. Mehr AJ, Ardakani MJ, Hedayati M, Shahraz S, Mehr EJ, Zali MR. Age-specific seroprevalence of hepatitis A infection among children visited in pediatric hospitals of Tehran, Iran. *Eur J Epidemiol* 2004;19:275-8.
10. Roushan MR, Bijani A, Sagheb R, Jazayeri O. Prevalence of hepatitis A IgG in individuals with chronic hepatitis B infection in Babol. *East Mediterr Health J* 2007;13:1108-13.
11. Alian S, Ajami A, Ghasemian R, Yadegarinia D. Age-specific seroprevalence of hepatitis A in Sari, northern Islamic Republic of Iran. *East Mediterr Health J* 2011;17:754-8.
12. Saffar MJ, Abedian O, Ajami A, Abedian F, Mirabi AM, Khalilian AR, *et al.* Age-specific seroprevalence of anti-hepatitis a antibody among 1-30 years old population of savadkuh, mazandaran, iran with literature review. *Hepat Mon* 2012;12:326-32.
13. Ghadir MR, Jafari E, Rezvan H, Amini-Kafiabad S, Vaeze-Javadi M, Pourshams A. Hepatitis A and E in the east of Golestan province. *Jornal of medical council of IRI*. 2007;25:34-8.
14. Ataei B, Javadi AA, Nokhodian Z, Kassaeian N, Shoaei P, Farajzadegan Z, *et al.* HAV in Isfahan province: A population-based study. *Trop Gastroenterol* 2008;29:160-2.
15. Merat S, Rezvan H, Nouraei M, Abolghasemi H, Jamali R, Amini-Kafiabad S, *et al.* Seroprevalence and risk factors of hepatitis A virus infection in Iran: A population based study. *Arch Iran Med* 2010;13:99-104.
16. Sofian M, Aghakhani A, Farazi AA, Banifazl M, Etemadi G, Azad-Armaki S, *et al.* Seroepidemiology of

- hepatitis A virus in children of different age groups in Tehran, Iran: Implications for health policy. *Travel Med Infect Dis* 2010;8:176-9.
17. Mohebbi SR, Nejad MR, Tahaei SM, Pourhoseingholi MA, Habibi M, Azimzadeh P, *et al.* Seroepidemiology of hepatitis A and E virus infections in Tehran, Iran: A population based study. *Trans R Soc Trop Med Hyg* 2012.
 18. Ramezani H, Bozorgi SH, Nooranipour M, Mostajeri A, Kargar-Fard H, Molaverdikhani S, *et al.* Prevalence and risk factors of hepatitis A among blood donors in Qazvin, central Iran. *Singapore Med J* 2011;52:107-12.
 19. Taghavi SA, Hosseini Asl MK, Talebzadeh M, Eshraghian A. Seroprevalence study of hepatitis A virus in Fars province, southern Iran. *Hepat Mon* 2011;11:285-8.
 20. Shoaie P, Zeidabadinejad L, Hassannejad R, Ataei B, Yaran M, Kassaian N, *et al.* Seroprevalence of hepatitis a in patients with chronic hepatitis C in isfahan province. *Int J Prev Med* 2012;3:S102-6.
 21. Campagna M, Siddu A, Meloni A, Basciu C, Ferrai L, Pettinau A, *et al.* Changing pattern of hepatitis a virus epidemiology in an area of high endemicity. *Hepat Mon* 2012;12:382-5.
 22. Saberifiroozi M. Hepatitis A virus infection: Is it an important hazard to public health?: Hazards of HAV for public health. *Hepat Mon* 2011;11:235-7.
 23. Ghorbani GA. Is evaluation of hepatitis a immunity required or not? *Hepat Mon* 2011;11:955-7.
 24. Alavian S. Iraq: A hot zone for HAV infection? *Hepat Mon* 2005;5:53-6.

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