

# Hepatitis A vaccination in developing countries: Is Syria next?

## INTRODUCTION

Hepatitis A is a disease caused by a RNA virus that is classified as a member of the picornavirus family. Hepatitis A virus (HAV) is usually transmitted by the fecal-oral route, most frequently via contaminated food or water or close contact. The virus is also associated with poor sanitary conditions and low socioeconomic status.<sup>[1]</sup>

HAV causes an acute benign disease that is generally self-limited, rarely fatal and normally limited to the liver. Seventy percent of infected children less than 6 years old are asymptomatic and even when illness occurs, it is usually subclinical.<sup>[2]</sup> On the other hand, in children above the age of 6, infection is usually symptomatic and accompanied by jaundice in more than 70% of cases.<sup>[3]</sup> Typical symptoms last less than 2 months, yet prolonged or relapsing disease accounts for 10-15% of cases.<sup>[4]</sup>

The case fatality ratio of Hepatitis A is estimated to be 0.3-0.6% and reaches up to 1.8% in adults older than 50 years of age.<sup>[5]</sup> Patients with chronic liver disease who acquire hepatitis A are at an increased risk of acute liver failure disease.<sup>[6,7]</sup>

At this point there is no specific treatment for HAV infection. The Centers for Disease Control and Prevention (CDC) recommends the vaccination of all children at age 1 year as it is the most effective method to prevent hepatitis A infection.<sup>[8]</sup>

### Vaccine

Previous vaccination attempts to reduce the incidence of HAV infection were very successful. Universal vaccination programs had a positive impact not only on the vaccinated groups but also on nonvaccinated groups mainly due to a herd immunity effect.<sup>[9]</sup> In the USA, Hepatitis A vaccine was implemented in 17 states, decreasing the Hepatitis A rate by 88% to a historic low.<sup>[10]</sup> Vaccination has proven to be safe with no increases in serious adverse events compared with baseline.<sup>[11]</sup>

In Syria, vaccination against HAV is not included in the Extended and Routine Program on Immunization, and currently there is no recommended HAV vaccination strategy in Syria.

### The status of Hepatitis A in Syria

In 2000, a study conducted in Syria on over 800 patients noted serologically that 89% were previously infected, with 95% of cases occurring in patients under the age of 15 years.<sup>[12]</sup>

In different parts of the world, there has been a gradual shift in the age of acquiring HAV to older age groups.<sup>[13]</sup> This shift has also been documented in most of Syria's neighboring countries.<sup>[14,15]</sup> This is mainly due to enhancing sanitation of the drinking water, increased promotion of personal hygiene measures reflecting an improvement in the socioeconomic conditions. The same applies for Syria; with the current development of better sanitation and living conditions, a shift in the age of infection to an older age group would be expected in the near future.

## DISCUSSION

Despite the advances of modern medicine, most diseases are not vaccine-preventable. In the case of Hepatitis A, we are fortunate that a vaccine exists and that its administration can prevent future infection. Syria's current situation is best described as having high seroprevalance of Hepatitis A in children.<sup>[12]</sup> Considering the improvements in personal hygiene standards, international support of Syria's water network and sanitation, and the epidemiologic shift documented in several neighboring countries, an epidemiological shift in prevalence of Hepatitis A in Syria is likely to occur. This expected epidemiological shift to adult population would increase the symptomatic infection rate as well as the morbidity and mortality. A decision in Syria on when and how the vaccine should be used needs to be made.

We recommend Hepatitis A vaccine in Syria for the following reasons:

- Hepatitis A vaccine has been commercially available for more than a decade and it has proved to be both effective and immunogenic.<sup>[16]</sup>
- The safety of HAV has been well studied concluding that it is a well tolerated vaccine with low side-effect profile. In addition, although the vaccine is a two shot series, a protective response has been illustrated with a single shot.<sup>[17-18]</sup>

- Considering the high prevalence of infections in Syria, the great morbidity associated with hepatitis A and the successful western experience in dealing with hepatitis A,<sup>[10]</sup> it is reasonable to include the Hepatitis A as part of the routine vaccination for the children.
- The vaccine appears to be cost-effective in countries where it has been implemented.<sup>[19-21]</sup>
- Taking into consideration the fact that a high percentage of the Syrian population is seropositive for Hepatitis A and that most patients reported asymptomatic disease, this may seem like a reason to avoid the expenditures and hard work associated with implementing a new vaccine nationwide. On the other hand with the development of better health promotion in Syria, the effect of reducing the early infection/late infection ratio would favor a trend in increasing symptomatic versus asymptomatic cases. The increase in morbidity from symptomatic cases and mortality of fulminant cases necessitates serious consideration of adding the vaccination to the national immunization program.

Future studies should document the anticipated, and probably already existing, epidemiological shift to the adult population. It could be only a matter of time before a much-anticipated improvement in Syria's water system and food hygiene standards prove to have a deleterious health effect from Hepatitis A.

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