

Hepatitis A seroprevalence among infants aged 12 months in Ankara

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Seroprevalence studies in various age groups contribute to a better understanding of hepatitis A infection and response to hepatitis A immunization. Hepatitis A seroprevalence in 12-month-old infants from Ankara was studied. Among 601 healthy infants, overall hepatitis A seropositivity was found to be 23.5%. There were no gender differences in seropositivity (22.6 % for male and 24.5% for female infants). Although vaccination of infants would be an ideal prevention strategy, presence of maternal anti-hepatitis A virus (HAV) antibody interferes with the immune response to hepatitis A vaccine in infants and young children. Therefore, further knowledge about decay of maternal antibody in infants is important in determining the optimal age for vaccination against hepatitis A. There is no recommendation for routine hepatitis A vaccination in Turkey. However, we need more seroprevalence studies in different age groups to decide the appropriate timing/age of vaccination.

Key words: hepatitis A, seroprevalence.

Hepatitis A is an acute, self-limiting infection of the liver, and a significant public health problem worldwide. Seroprevalence studies in various age groups contribute to a better understanding of hepatitis A infection and response to hepatitis A immunization. The age distribution of hepatitis A virus (HAV) seroprevalence varies according to geographical, environmental and socioeconomic conditions. In Turkey, western and central regions of the country have intermediate endemicity, whereas eastern and southern regions have shown high endemicity. Many children and adults living in the central and western parts of the country remain seronegative and are thus susceptible to HAV infection¹.

Prior to another study aiming to investigate the immunogenicity of AVAXIM™ 80U-Pediatric administered alone or concomitantly with other vaccines in 12-13-month-old infants, blood samples were obtained for hepatitis A serology for the study enrolment. Serum samples were obtained from 12-month-old

infants from Ankara between August 2007 and February 2009. Preterm infants and infants with low birth weight, immune deficiencies, blood transfusion, or any chronic illnesses were excluded. Anti-HAV IgG antibody levels were measured using an enzyme immunoassay.

Among 601 healthy infants, overall hepatitis A seropositivity was found to be 23.5%. There were no gender differences in seropositivity (22.6% for male and 24.5% for female infants) (Table I). The results of seroprevalence studies among children of different age groups from different regions in Turkey within the last decade are given in Table II.

Recommendation of vaccination depends on the HAV endemicity of the region. The World Health Organization (WHO) recommends universal hepatitis A vaccination only in intermediate endemicity areas; there is no need for mass vaccination in high and low endemicity regions^{9,10}. However, the appropriate timing of vaccination has not been defined. In intermediate endemic areas such as Turkey,

Table I. Hepatitis A Seropositivity and Gender Difference

Gender	Seropositivity n, (%)		Total
	Yes	No	
Male	72 (22.6)	247 (77.4)	319 (100)
Female	69 (24.5)	213 (75.5)	282 (100)
Total	141 (23.5)	460 (76.5)	601 (100)

young children infected with hepatitis A can serve as a reservoir of infection for adolescents and adults, who are much more likely to develop clinical illness with a high morbidity and mortality. Thus, young children should be the primary focus of vaccination.

Hepatitis A vaccination interrupts virus transmission very efficiently and can lead to a substantial reduction in the incidence of hepatitis A infection in the entire population. Although vaccination of infants would be an ideal prevention strategy, in medium or high endemicity regions (like in our country), most women of childbearing age have anti-HAV antibody, which is transferred to their infants during pregnancy. For example, in Turkey, Alabaz et al.⁶ found that 138 (93.9%) of 147 newborn infants and their mothers were seropositive for hepatitis A. Kanra et al.³ showed that HAV seroprevalence was 70.2% in infants under one year of age and 73.2% in women under the age of 30. They concluded that the transmission of maternal antibodies occurs at a high rate. Presence of maternal anti-HAV antibody interferes with the immune response to hepatitis A vaccine in infants and young children^{11,12}. Therefore, further knowledge about decay of maternal antibody in infants is important in determining the optimal age for vaccination against hepatitis A.

Seroepidemiologic studies have indicated that maternally derived anti-HAV antibody titers remain high during the first six months of

life but decay significantly by 12 months of age. For instance, in 2005, Alabaz et al.⁶ reported that seropositivity rates of infants at 3, 6, 9, 12, 15, and 18 months of age were 90.5%, 84.4%, 62.6%, 36.1%, 13.6%, and 6.1%, respectively (Fig. 1). According to these data, indicating that only 6.1% of infants in Turkey at the age of 18 months had remaining maternal antibodies, two-thirds of the infants over the age of 12 months are at high risk of acquiring HAV infection. In our study, hepatitis A seropositivity was found to be 23.5% in children at 12 months of age. Unfortunately, we were unable to determine whether these antibodies were of maternal origin or the result of an acquired infection. HAV immunization is given after the disappearance of maternal antibodies in developed countries; for example, the American Academy of Pediatrics recommends hepatitis A vaccination after one year of age¹⁰. There is no recommendation for routine hepatitis A vaccination in Turkey. However, we need more seroprevalence studies in different age groups to decide the appropriate timing/age of vaccination.

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Table II. Hepatitis A Seropositivity Rates of Different Age Groups in Turkey

Investigator Name	Place	Year	Age	Case number	Seropositivity rate
Sidal et al. ²	Istanbul	2001	6 months-2 years	150	12.2%
Kanra et al. ³	9 provinces	2002	1-4 years	727	42.7%
Tanır et al. ⁴	Ankara	2003	6 months-2 years	136	44.0%
Tosun et al. ⁵	Manisa	2004	6 months-2 years	272	47.8%
Alabaz et al. ⁶	Adana	2005	12 months	147	36.1%
Özen et al. ⁷	Malatya	2006	3-6 years	286	17.5%
Arabacı et al. ⁸	Çanakkale	2009	0-6 years	77	49.3%

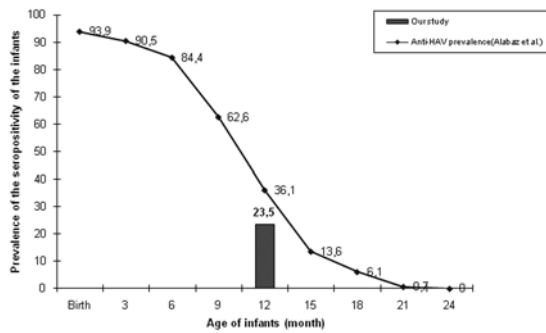


Fig. 1. Prevalence of anti-HAV antibody in the present study compared to the results of Alabaz et al.⁶

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