

HEPATİTİS A SEROPREVALENCE AMONG 2-6 YEAR-OLD CHILDREN OF LOW SOCIOECONOMIC CLASS FAMILIES

Sosyoekonomik Düzeyi Düşük Ailelerin 2-6 Yaş Arası Çocuklarında Hepatit A Seroprevalansı

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Abstract

Purpose: Hepatitis A infection is an important public health problem in our country. However, its endemicity pattern has been changing in recent years both worldwide and in our country. The purpose of this study was to determine the seroprevalence of Hepatitis A infection among 2-6 year-old children of low socioeconomic class families.

Material and Methods: This study was conducted on children of low socioeconomic class families who were expected to experience hepatitis A infection early in their life. Hepatitis A IgM and IgG antibody levels were determined on 736 children from 2 to 6 years old.

Results: Three hundred and fifty-two were female and 384 were male among the 736 children. Ig G antibodies were found to be positive in 26 (3.5%) children.

Conclusions: We recommend vaccination of children at preschool age. However, further epidemiologic studies are necessary concerning different socioeconomic levels. Following the results it may be possible to vaccinate children without determining antibody status if hepatitis A seropositivity is determined to be low at this age.

Key Words: Child; Hepatitis A; Hepatitis A antibodies; Hepatitis A vaccines; Seroprevalence.

Introduction

Hepatitis A is among the most prevalent public health problems in our country due to its oral-fecal transmission. The two important factors affecting the epidemiology of this infection appear to be age and socioeconomic status (1,2). As a developing country, Turkey is in the medium endemicity region according to WHO classification (3). According to this

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Özet

Amaç: Hepatit A enfeksiyonu ülkemizde önemli bir halk sağlığı problemidir. Hastalığın endemi paterni ülkemiz ve tüm dünyada son yıllarda değişmektedir. Çalışmamızın amacı; sosyoekonomik düzeyi düşük ailelerin 2-6 yaş arası çocuklarında Hepatit A enfeksiyonunun prevalansını belirlemektir.

Gereç ve Yöntem: Çalışmaya dahil edilen vakalar; öncesinde Hepatit A enfeksiyonu ile karşılaştığı düşünülen sosyoekonomik seviyesi düşük ailelerin çocuklarından seçildi. 2-6 yaş arası 736 çocukta Hepatit A IgM ve IgG antikor seviyeleri değerlendirildi.

Bulgular: 736 hastanın 352'si kız, 384'ü erkek idi. IgG antikor 26 (%3,5) çocukta pozitif olarak bulundu.

Sonuç: Okul öncesi dönemdeki çocuklarda aşılama öneriyoruz. Bununla birlikte, çeşitli sosyoekonomik seviyelerdeki sahalarda daha fazla epidemiyolojik çalışmanın gerekli olduğunu düşünüyoruz. Bulgular doğrultusunda, bu yaş grubunda Hepatit A seropozitivitesi düşük olduğundan, antikor bakılmadan çocukların aşılama uygun olabilecektir.

Anahtar Kelimeler: Çocuk; Hepatit A, Hepatit A antikorları; Hepatit A aşısı, Seroprevalans.

classification, the majority of young adults are seropositive, and have been infected during childhood. However, its seroprevalence changes within different geographical areas and also within these different regions of the same country. Vaccine is suggested during childhood especially in endemic areas (4). This study was conducted to determine the seroprevalence of hepatitis A among preschool children of low socioeconomic class families. The purpose of this study was to determine the necessity of hepatitis A vaccination of children before entering communities like school.

Material and Methods

This study was performed at the Outpatient Department of Dr. Sami Ulus Children's Hospital between September 2002 and May 2003 on 736 otherwise healthy children, aged between 24 and 72 months. Dr. Sami Ulus Children's Hospital is located in Altındağ country region, which is mostly populated by low socioeconomic class people. The mothers of the children were all primary school graduates or illiterate. The monthly family income was less than 250 USD.

After having received consent from the parents, serum samples were investigated for hepatitis A Ig M and Ig G antibodies using microparticle enzyme immunoassay (AXSYM instrument) and hepatitis A virus antibody samples (Abbott Laboratory). AXSYM is an access random instrument and has a threshold level of 1.9/00. Results lower than 1.9/00 were considered positive, and higher than the threshold accepted as negative.

Results

Three hundred and fifty-two of 736 children included in the study were female and the rest were male. The average age of the patients were 61.2 months.

Of the families, 90 % of the children included in the study had state health insurance, whereas 10 % did not have any health insurance.

Seropositivity rates of anti HAV IgM and IgG antibodies according to ages are shown in Table I. In only five (0.67%) children (ages 5 -6) had Anti HAV IgM seropositivity. In 26 children (3.5%), 9 of whom were female and 17 were male, AntiHAV IgG positivity was determined and their ages were between 42 and 72 months. Between 24 and 42 months, there was no Anti HAV IgG seropositivity.

There was no history of hepatitis A vaccination in any of the children.

Discussion

Hepatitis A virus infection continues to be one of the major health problems in underdeveloped and developing countries due to the insufficiency of

infrastructure. The infection is encountered more frequently and at earlier ages in societies of low socioeconomic class. However, our results differ from those in the literature such as and indicate levels as low as 3.5 % anti-HAV IgG positivity in children aged 2-6 years of low socioeconomic class families (3,5-8). Poor sanitation, bad hygienic conditions and overcrowding, together with low socioeconomic levels in some regions of Southeast Asia and South America lead to peak levels of hepatitis A infection during early childhood years (3, 5-7). In such regions, nearly all children are infected before reaching 9 years of age. The age of acquisition of hepatitis A infection is 3 in India and 5 in Pakistan (8,9). However, despite having selected a low socioeconomic class group, our seropositivity rate is very low. Subjects included in the study were all living within official municipality boundaries. Ankara, being the capital city of Turkey, is one of the cities in Turkey in which infrastructure studies have been conducted meticulously during the last few years. All the subjects were living in houses with tap water and toilets. This may partly explain our lower seropositivity rate than previous studies (10,11).

Several studies on hepatitis A seroprevalence in our country have been conducted in recent years (Table II). Despite different geographic regions and selected groups in each study, our hepatitis A seroprevalence below five years of age appears to be between 2.7 to 35 %, without considering the socioeconomic level. In some of these studies it can be seen that the first 2 years of life is not separately evaluated for hepatitis A seroprevalence of 0-5 year age group (12,13). However, maternal antibodies, which are passively acquired and may remain in circulation up to 2 years of age may account for high seroprevalence rates in children under 2 years of age. Children under 2 years of age were not included in our study, therefore our results are expected to reflect reality better than other studies. In our previous study, we documented anti-HAV positivity as 2.7 % in 2-6 year-old children of high socioeconomic class families and advised vaccination of this group when maternal antibodies disappeared (14). It is surprising to find very similar

figures for seroprevalence of hepatitis A in 2 separate studies, despite the low socioeconomic status and similar age of the children.

The endemicity pattern of hepatitis A virus infection appears to be changing in recent years (15). There is a shift towards later ages in Turkey as well as in other countries. According to our results, because of low hepatitis A seroprevalence among children of low

socioeconomic class families, these children are advised to be immunized at preschool age before entering crowded communities, such as kindergarten and school. There is a need for epidemiologic studies in our country addressing different socioeconomic levels. Depending on the results of these studies, if hepatitis A seroprevalence is found to be low at these ages it may be advisable to immunize these children against hepatitis A without determining antibody status.

Table I: Anti HAV IgG seroprevalence rates

Age (months)	Number of children	Anti HAV IgM (+)		Anti HAV IgG (+)	
		N	Percentage	N	Percentage
24-30	80	0	0 %	0	0 %
30-36	175	0	0 %	0	0 %
36-42	92	0	0 %	0	0 %
42-48	72	0	0 %	2	0.27 %
48-54	52	0	0.1 %	3	0.4 %
54-66	83	2	0.27 %	6	0.8 %
66- 72	182	3	0.4 %	15	2 %
TOTAL	736	5	0.67 %	26	3.5 %

Table II. Hepatitis A seroprevalence in Turkey

Author	Region	Age group	N	Anti HAV Ig G positivity (%)
Taşyaran 1994 ¹⁰	Erzurum	3-6	180	33.3
Öztürk 1995 ¹¹	Kayseri	1-6	504	32.9
Aldeniz 1998 ¹²	Istanbul	0-4		15.2
		5-9	812	36.1
		10-14		57.7
Sönmez 2000 ¹³	Malatya	0-6	420	35
Harmancı 2002 ¹⁴	Ankara	2-6	292	2.3
Yapıcıoğlu 2002 ¹⁵	Adana	2-6		28.8
		6-12	316	49.8
		12-16		68

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