

Research Article

Hepatitis A Seroprevalence in Employees of a Public Hospital

Fidan Canan Celik Yagan,¹ Gulcin Gungor Olcum², Sule Eren Cakar³

¹Family Doctor, University of Health Sciences Umraniye Training and Research Hospital, Istanbul, Turkey

²Department of Internal Medicine, University of Health Sciences Umraniye Training and Research Hospital, Istanbul, Turkey

³Department of Infectious Diseases, University of Health Sciences Umraniye Training and Research Hospital, Istanbul, Turkey

Abstract

Objectives: The hepatitis A virus (HAV) is spread through the fecal-oral route. A vaccine is available for this infectious disease that primarily affects the liver, and which may have a more severe course in patients of advanced age. Hepatitis A outbreaks are often observed in places such as hospitals, schools, and long-term care centers. The aim of this study was to determine the seroprevalence in health workers within the risk group according to profession group.

Methods: The anti-HAV immunoglobulin G (IgG) seropositivity of health workers at Zeynep Kamil Women's and Children's Disease Training and Research Hospital between January 1, 2012 and February 15, 2014 was evaluated retrospectively. A total of 169 participants were included in the study; 26 were male and 143 were female. Statistical significance was accepted at $p < 0.05$.

Results: In all, 109 (64.49%) of those included in the study were anti-HAV-IgG seropositive, while 60 (35.50%) were anti-HAV-IgG seronegative. Of the participants with an anti-HAV-IgG seropositive result, 92 (84.4%) were female and 17 (15.59%) were male. The HAV-IgG-positive rate was found to be significantly higher in the age group of those aged 35 years or more ($p < 0.05$) in this study.

Conclusion: HAV infection still ranks first among vaccine-preventable diseases frequently seen. Given the prevalence of the infection, its causing fulminant insufficiency, the large number of people affected in community-based outbreaks, the high risk of infection in some groups, and the cost of infection (hospitalization, loss of labor, prophylaxis after contact), the importance of vaccination is clear.

Keywords: Hepatitis A infection, hepatitis A seropositivity, hepatitis A vaccine

Cite This Article: Celik Yagan F, Gungor Olcum G, Eren Cakar S. Hepatitis A Seroprevalence in Employees of a Public Hospital. *EJMO*. 2017; 1(2): 92-95

Hepatitis A virus (HAV) is a nonenveloped, single-stranded, RNA virus which is transmitted primarily by the faecal-oral route. Contaminant food and water have a significant role in the spread of virus. Faecal-oral means and in-house infection are important because virus is excreted by the stool of infected persons in high amounts.^[1]

Much as 1.5 million Hepatitis A cases are reported each and every year in the world, the actual incidence is thought to be 10 times higher. Turkey is among the countries with moderate endemicity compared to the rates observed in the world.

80–95% of hepatitis A infection cases in children under five years of age has a still course while 75–90% of it has a symptomatic course in adult age group. Symptomatic disease generally lasts shorter than two months. However, in 10–15% of cases the disease may have a persistent course or may cause relapses in the first six months. 80% mortality can be seen in rare cases if fulminant hepatitis develops. Because the morbidity and mortality rate of the disease increases with age, hepatitis A infection leads to high treatment costs and loss of work power in later ages. Much as the infection does not have feature of being chronic it

Address for correspondence: Fidan Canan Celik Yagan, MD. Umraniye Egitim Arastirma Hastanesi, Istanbul, Turkey

Phone: +90 216 632 18 18 **E-mail:** fccelik@yahoo.com

Submitted Date: June 14, 2017 **Accepted Date:** August 18, 2017 **Available Online Date:** August 26, 2017

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causes permanent immunity.^[2-5]

This study is intended to compare Anti HAV-IgG seropositivity of health workers working in different duties in our hospital and to determine the susceptibility rates for HAV infection.

Materials and Methods

The Anti HAV-IgG seropositivity of health workers working in Zeynep Kamil Women's and Children's Hospital Training and Research Hospital and who had Anti HAV-IgG test between the dates of 01.01.2012 and 15.02.2014 was evaluated retrospectively in this study. The necessary permits were received from the foregoing hospital administration.

A total of 169 subjects, of which 26 (5.38%) were male and 143 (84.61%) were female, were included in the study. Anti-HAV-IgG seropositivity was evaluated retrospectively. IBM SPSS Statistics 22.0 program was utilized for statistical analysis while the findings obtained in the study were evaluated. Chi-square test and Continuity Correction (Yates) test were employed when study data were evaluated. Significance was assessed at $p < 0.05$ level.

Results

The research was carried out with a total of 788 employees between 01.01.2012 and 15.02.2014. 187 (24.1%) of the employees were male while 589 (74.7%) were female. Age distribution ranged from 20 to 65 years with an average of 36.29 ± 9.27 years.

Distribution of hospital employees in line with their duties was determined (Table 1). 673 (85.4%) of the 788 cases, included within the study, consisted of persons who could have individual contact with the patient.

HAV IgG positivity rate was significantly higher in the age group of 35 and over compared to the age of 35 ($p < 0.05$) in our study. It was determined that HAVIgG positivity rate increased in line with increase in age (Table 2).

Discussion

Hepatitis A infection has usually an asymptomatic course in children while it has a 80% symptomatic course in adult age group and it is a serious health problem mortality rate of which increases by age.^[6, 7]

Children usually get rid of the infection at early childhood stage in developing countries and places where sanitary conditions are variable and reach adulthood without immunity. These developed economic and sanitary conditions may cause accumulation of non-immunized adults. This high sensitivity in aging, may lead to increase in disease rates and large outbreaks in these communities.^[8]

In terms of Hepatitis A infection, people who travel to places where HAV is endemic, drug users, people living in the same house with the infected person, people who use water if enough hygiene has not been provided and people with low immunity are at risk. Immunization can be achieved within 1 month by vaccination. If vaccination is made within 2 weeks after contact with the virus can provide effective immunity against virus.^[8] Routine vaccination has been scheduled since September 2012 in our country and it is applied in 18th and 24th months (<http://thsk.saglik.gov.tr>).

HAV seroprevalence differs all over the world and in our country in terms of age, region and socioeconomic status.^[9] Seropositivity rate in males was determined to be in higher amount than in females in terms of gender in some studies. It was thought that the reason of this may arise from male's being more into contact with the external environment, more consumption of food and beverages which are prepared under unfavorable conditions.^[10]

However, there is no significant difference in terms of gender between males and females in terms of getting hepatitis A infection according to many studies.^[11] No significant difference was found also in our study in terms of HAV seroprevalence when the groups were compared in terms of gender.

It is observed that the number of infected persons also increases as the age increases, when the studies carried out in the adult population from different regions of our country are examined. While the prevalence in 17–27 age group was 47.3% the prevalence in people over 50 years of age was 92% in a study conducted with a total 1112 adult persons in Rize province.^[12] HAV seropositivity was detected as 74.4%, 93.7% and 96.3% in 21–30, 31–40 and 41–50 age groups respectively in a study conducted at Ünye according to age groups.^[13] HAV seropositivity was found as 70.8% and 96.1% in young adults between the ages of 17–36 and adults over the age of 36 respectively in Çanakkale region.^[14]

Again in a study conducted by Kurt et al in another study group of healthy adults in Ankara, seropositivity has been reported as 79.4%, 68.9% and over 90% between the ages of 16–20, between the ages of 21–25 years and over the age of 25 years respectively.^[15]

In the study performed by Iraz M. et al. 42.8% seropositivity and 57.2% susceptibility were detected in the 17–27 age group. Anti-HAV IgG prevalence in middle age adult groups has been found as 78.3% and 93.8 in 28–38 age group and 39–49 respectively and it has been observed to be 100% in the age group of 50 years and over found to increase with age.^[11]

Table 1. Distribution of duties of the employees

Title	n	%
Anesthesia Technician	4	0.5
Anesthesia Technician	17	2.2
Assistant Doctor	94	11.9
Chef-ASC (Auxiliary Services Class)	2	0.3
Inventory Accountant-GASC (General Administrative Services Class)	1	0.1
Chief Assistant	12	1.5
Chief Physician	1	0.1
Deputy Chief Physician	2	0.3
Computer technician	1	0.1
Biologist	6	0.8
Child Development	4	0.5
Dentist	2	0.3
Nutritionist	2	0.3
Midwife	149	18.9
Pharmacist	4	0.5
Education Officer	14	1.8
Director of Patient Services and Health Hotel Management	1	0.1
Hospital Manager	1	0.1
Nurse	204	25.9
Employee-ASC (Auxiliary Services Class)	21	2.7
Deputy Director of Administrative and Financial Affairs	2	0.3
Director of Administrative and Financial Affairs	1	0.1
First and Emergency Aid Technician	1	0.1
Director of Quality Management	1	0.1
Laboratory Technician	3	0.4
Laboratory technician	30	3.8
Officer-GASC (General Administrative Services Class)	6	0.8
Audiometry Technician	1	0.1
Pathological Anatomy Technician	2	0.3
Practitioner Doctor	5	0.6
Psychologist-HSC (Health Services Class)	4	0.5
X-ray technician	1	0.1
X-ray Operative	15	1.9
Assistant Director of Health Care Services	2	0.3
Director of Health Care Services	1	0.1
Health Officer	4	0.5
Social Worker-HSC (Health Services Class)	22	0.3
Conductor-GASC (General Administrative Services Class)	2	0.3
Driver-ASC (Auxiliary Services Class)	1	0.1
Technician-ASC (Technical Services Class)	2	0.3
Tailor-ASC (Auxiliary Services Class)	1	0.1
Medical Secretary-HSC (Health Services Class)	30	3.8
Medical Technologist-HSC (Health Services Class)	1	0.1
Specialist	96	12.2
Data Preparation Control Operator	11	1.4
Branch Assistant	9	1.1
Branch Specialist Doctor	12	1.5

There was no significant difference in anti-HAVIgG positivity in terms of gender ($p>0.05$).

Table 2. Evaluation of anti-HAVIgG in terms of gender and age

	Anti HAVIgG				p
	Negative		Positive		
	n	%	n	%	
Gender					
Male	9	34.6	17	65.4	1.000
Female	51	35.7	92	64.3	
Age					
<25	4	50	4	50	20.001**
25–34	45	56.3	35	43.8	
35–44	8	16.7	40	83.3	
45–54	3	12.5	21	87.5	
≥55	0	0	9	100	

¹Continuity Correction (Yates) test; ²Pearson Chi-square test **p<0.01.

When seropositivity of HAV IgG was evaluated according to age in our study it was found as 50%, 43.8%, 83.3%, 87.5% and 100% under the age of 25, between the ages of 25 and 34, between the ages of 35 and 44, between the ages of 45 and 54 years and over the age of 55 respectively. A statistically significant increase in the seropositivity rate with age was found similar to other studies.

This study shows that Hepatitis A may emerge as a serious health problem mostly in the adult age group in terms of morbidity, mortality and treatment costs in our country similar to other developed countries based on the data obtained from all these studies. It is thought that with the inclusion of hepatitis A to compulsory vaccination program of children in 2012, it has gained importance to make the vaccination program active by determining the individuals in adult age group including especially those in the risk group.

Children generally get rid of the infectious disease in early childhood and reach adulthood without immunity in countries with transition economies in developing countries and areas where sanitary conditions are changeable. Ironically, the cited advanced economic and sanitary conditions may cause the accumulation of infected and non-immunized adults. This high susceptibility in the older ages may cause increased disease rates and major epidemics in these communities.

Disclosures

Ethics Committee Approval: The study was approved by the Local Ethics Committee.

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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