

THE CHANGING EPIDEMIOLOGY OF HEPATITIS - A INFECTION: THE YOUTH WE MISSED

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ABSTRACT

Aim: Hepatitis-A virus (HAV) is a disease that can be seen all over the world and spread easily due to the fact that it can be transmitted by the fecal-oral route. Because it is a disease that can be easily prevented by correcting vaccination and sanitation conditions, it is important to follow up on current seroprevalence and sanitation conditions and take local vaccination policies and other measures in this direction. In our study, we aimed to determine the sensitive population by revealing the current Seroprevalence of HAV in different geographical regions of our country.

Material and methods: Between January 2015 – December 2020, data of patients who received anti-HAV IgG in 5 education and research hospital from 4 different geographical regions were retrospectively examined. Anti-HAV IgG values were determined by ELISA method.

Results: The study included 54 374 patients. The total seronegativity rate in our patients was 37.6 %. Seronegativity rates by age were 44.6% between the ages of 8-17; 39.1% between the ages of 18-45 and 30.5% over the ages of 45. Of the 985 patients who were health workers, 913 (92.7%) were seronegative (sensitive).

Discussion: In our study, the height of seronegativity rates in young people was remarkable. HAV vaccine has been included in the routine childhood vaccination program in Turkey since 2012. Especially due to the fact that the rates of seronegativity in the young population are starting to increase and this group is ignored, a kind of lost generation occurs. This suggests that HAV may be an important public health problem in the coming years. In order to gain this lost generation, screening of these people and especially young people who are studying or working in the field of Health and vaccination of those who are seronegative should be provided.

Keywords: Hepatitis A virüs, prevalence, epidemiology, youth, vaccine.

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Introduction

Hepatitis A virus, a single-stranded RNA virus, is a non-envelope virus that can be transmitted fecal-orally. HAV, which is more common in underdeveloped and developing countries, is a global public health problem due to the fact that it causes complications, morbidity-mortality and

significant labor loss that can occur depending on the age at which it is seen⁽¹⁾. According to sanitation and hygiene conditions, the age and frequency of disease occurrence vary; the risk of developing complications is quite low if it is passed at an early age, while the risk of developing complications is also significantly increased when it is passed at an old age⁽²⁾.

With the progression of age in developing countries, seropositivity rates rise above 90%. Globally, however, air seroprevalence is falling. In previous studies conducted in our country, which is defined as the middle endemic region in terms of the prevalence of HAV, seronegativity rates are quite low at the age of second decades⁽³⁾. Although studies on the hepatitis-A vaccine have shown that the effectiveness and reliability of the vaccine are quite high, it is noted that the protection lasts 30-40 years⁽⁴⁾. This study, it was aimed to determine the current state of HAV seroprevalence in the provinces representing different geographical areas of Turkey and to determine the need for immunoprophylaxis.

Material and methods

Our study was conducted by retrospectively screening the electronic files of patients who were admitted to 5 education and research hospital in Antalya, Amasya, Istanbul, and Trabzon provinces from different geographical regions of Turkey and looked at Anti-HAV IgG. Between January 2015 and December 2020, patients who were checked for anti HAV-IgG for any reason and who were not vaccinated against hepatitis-A were included in the study. Due to the fact that the Hepatitis-A vaccine in our country was taken into the routine vaccination scheme in 2012, those born after 2011 were not included in the study. Patient demographics, vaccine history, and laboratory results were recorded in the study form. The participants in the study were divided into 3 groups: 8-17, 18-45 and over 45 years of age. Anti-HAV IgG levels of patients were studied using the ELISA method.

Statistical analysis

Descriptive statistical analysis was performed for all the variables investigated in the study. Results were expressed as number, percentage and, mean \pm standard deviation. Data obtained by counting was expressed as number (%). Chi-square test was used in the analysis of categorical variables. $P < 0.05$ was considered statistically significant.

Results

A total of 54 374 patients ranging in age from 8-101 were included in our study. Of the patients, 25 378 (46.7%) were male, and 28 996 (53.3%) were female. 8904 (35.1%) of male patients and 11628 (40.1%) of female patients were HAV-IgG negative

($p < 0.001$). 44.6% of patients aged 8-17 years, 39.1% of patients aged 18-45 years, and 30.5% of patients over 45 years were negative ($p < 0.001$) (Table 1). Although there was a decrease in sensitivity rates with age progression, this rate was on average 40% in the entire population. However, it is observed that the sensitive population between the ages of 8-18 is approaching 50%. It was determined that 985 of the patients we included in our study were students in the field of health. Of these 985 patients, 913 (92.7%) were found to be seronegative (sensitive).

Discussion

Hepatitis-A seroprevalence is inversely proportional to hygiene and sanitation conditions. For this reason, HAV seroprevalence also changes dynamically with increased access to clean water. Mortality rates under the age of 50 in acute HAV infection are between 0.2-0.6% and increase over the age of 50⁽⁵⁾. But due to the fact that it requires hospitalization and rest during treatment, it can lead to significant labor and economic losses. Hepatitis A is a disease that can cause serious economic losses, especially in cases of epidemics, although it is easy to prevent and cost less. For this reason, the World Health Organization (WHO) recommends regular monitoring of the prevalence of HAV, control of Hygiene and sanitation conditions, and vaccination and other necessary measures in accordance with the data obtained by local health authorities, rather than a universal vaccination program around the world. It recommends routine HAV vaccination in childhood in low - to mid-endemic areas⁽⁶⁻⁸⁾.

A study of seroprevalence conducted in Europe shows that prevalence rates in Greece, Italy, and Spain, which are on the Mediterranean coast, range from high - medium endemic levels to low - very low endemic levels⁽⁹⁾. Another study of seroprevalence conducted in Africa similarly shows that the rates of seroprevalence decrease in some regions⁽²⁾. Another systematic review by Jacobsen et al. shows that in 2005, Anti-HAV IgG positivity rates increased significantly in the North Africa-Middle East region compared to 1990, and between the ages of 20 and 24, the positivity rates exceeded 90% and were in the middle endemic region class⁽¹⁾. An important problem for the region of North Africa and the Middle East is the dynamic changes in the demographic structure due to regional wars. As a result of this change, it also poses a significant risk to the population that is sensitive to HAV.

A study by Kose et al on Syrian refugee children found that 45 (52.3%) of 86 refugee children had negative Anti-HAV IgG⁽¹⁰⁾. It is noted that there was a significant increase in acute HAV cases after 2013 in Lebanon, which is neighboring this country with the start of the civil war in Syria⁽¹¹⁾. In this multicenter study, in which 5 centers from 4 separate geographical regions were included, seropositivity rates decreased to 62.4%, and there was a parallel increase in the sensitive population. The rate of seronegative by 8-17 age was 44.6%. It is observed that there is a decrease in the sensitive population with the progression of age, and sensitivity rates over the age of 45 are 30.5%. This, in turn, shows that at least one in 3 people in old age is sensitive. In addition, 985 patients included in the study worked in the field of health, of which only 72 (7.3%) were seropositive, and 913 (92.7%) were susceptible to HAV. Very low seropositivity rates in health workers, such as those in developed countries, suggest that these people are associated with high socioeconomic levels.

Although in different studies conducted in Turkey, seropositivity rates in general over 80% at an early age, in recent years, the study published by Kader et al shows that seropositivity rates were 79.1%⁽¹²⁾. But in this study, it is observed that the seropositivity rate in the population between the ages of 10 and 14 is 37.9%. This indicates a sensitive young population of 62.1%. In our study, 13 374 (42.2%) of 31 697 people aged 8 to 35 years were seronegative. According to the Turkish Statistical Institute, this age group is approximately 25% of the total population of Turkey⁽¹³⁾. In light of these data, it seems that there is a significant group of sensitive populations in society. 1/3 of the population over the age of forty-five is sensitive, while the sensitivity rates in the young population approach 50%. In addition, a significant proportion of those who work in the field of Health in this young population is also susceptible. In addition, there is no screening and/or extended vaccination program for this susceptible population.

In conclusion, our study data show that there is a missing youth in terms of HAV immunity and that we may face a serious epidemic danger in the coming years. Therefore, in our country, where regional disturbances are heavily observed, and there is a significant refugee population, it is necessary to regularly monitor the vulnerable population according to WHO recommendations and to strictly control hygiene and sanitation conditions. With the

implementation of an expanded vaccination program in line with the data to be obtained, a serious epidemic danger that we may encounter will be eliminated.

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