Hepatitis A Seropositivity: Comparative Results of Two Hospitals in Turkey

Hepatitit A Seropozitifliği: Türkiye'de İki Farklı Hastanenin Karşılaştırmalı Sonuçları

Hepatitit A Seropozitifliği/ Hepatitis A Seropositivity

Harun Agca[1], Guliz Dogan Toklu[2]
[1]Microbiology Laboratory, Tavsanli Doc. Dr. M. Kalemli State Hospital
[2]Microbiology Laboratory, Usak State Hospital, Turkey

Özet

Amaç: Hepatit A virüsü, (HAV) ribonükleik asit (RNA) içeren picornavirüs olup fekal-oral yolla bulşmaktadır. HAV genellikle sessiz veya subklinik seyretmekte olup hastalığın sadece %5'i klinik olarak tanımlanabilmektedir. Bu çalışmada Türkiye'de Ege bölgesinde bulunan iki farklı hastenede HAV seropozitifliğinin belirlenmesi amaçlandı. Gereç ve Yöntem: Uşak Devlet Hastanesi ve Tavşanlı Devlet Hastanesi'ne başvuran ve Ocak 2011 ile Aralık 2011 döneminde serum alınarak hepatit A antikorları araştırılan hastalarda hepatitit A seropozitifliği retrospektif olarak irdelendi. Yaş, cinsiyet, Anti HAV Ig G and Anti HAV Ig M de araştırıldı. Bulgular: Uşak Devlet Hastanesinden 799, Tavsşanlı Devlet Hastanesi'nden 461 hasta Anti HAV Ig G ve Anti HAV Ig M seropozitifliği açısından incelendi. Uşak Devlet Hastanesi'nde hastaların % 78'i kadın, % 22'si erkek, yaş ortalaması 27,7 idi. Tavşanlı Devlet Hastanesi'nde hastaların % 54'ü kadın, % 46'sı erkek ve yaş ortalaması 38 idi. Uşak ve Tavşanlı Devlet Hastanelerinde Anti-HAV Ig M pozitifliği sırasıyla % 1,3 ve % 0,6 olarak bulundu. Anti-HAV Ig G pozitifliği ise Uşak ve Tavşanlı'da sırasıyla % 75,5 ve % 80,4 olarak bulundu. Sonuç: Toplum ve bireylerin hijyen düzeyinin geliştirilmesi, hijyen konusunda eğitim verilmesi, eğitim ve sosyoekeonomik seviyenin geliştirilmesi, Dünya Sağlık Örgütü önerileri doğrultusunda hepatit A aşısının uygulanması hepatit A enfeksiyonu sıklığının azalmasına yol açabilecektir.

Anahtar Kelimeler

Hepatit A; Hijyen; Seropozitiflik

Abstract

Aim: Hepatitis A virus (HAV) is a ribonucleic acid (RNA) picornavirus transmitted by fecal-oral route. HAV is usually silent or subclinic in children and on a worldwide scale only 5 % of infections are recognised clinically. In this study we aimed to determine the seroprevalance of HAV seropositivity in two different hospitals in the Aegean region of Turkey. Material and Method: Serum samples, which were taken from patients to investigate hepatitis A antibodies administrated to Usak State Hospital and Tavsanli Doc. Dr. M. Kalemli State Hospital between January 2011 and December 2011 were investigated for hepatitis A seropositivity retrospectively. Age, sex, Anti HAV Ig G and Anti HAV Ig M were investigated. Results: 799 patients in Usak State Hospital and 461 patients in Tavsanli State hospital were investigated for Anti HAV Ig G and Anti HAV Ig M. 78 % were female, 22 % were male and mean age was 27,7 in Usak State Hospital. 54 % were female, 46 % were male, mean age was 38,0 in Tavsanli State Hospital. Anti-HAV Ig M positivity in Usak and Tavsanli State Hospital are 1,3 % and 0,6 % respectively. Anti-HAV Ig G positivity in Usak and Tavsanli State Hospital are 75,5 % and 80,4 % respectively. Discussion: Improvement of public and individual hygiene, education about hygiene, improvement of education and socioeconomic level of public and vaccination against HAV as recommended by the World Health Organisation may decrease the burden of HAV infection.

Keywords

Hepatitis A; Hygiene; Seropositivity

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Corresponding Author: Harun Agca, Tavsanli Doc. Dr. M. Kalemli State Hospital, 43300, Tavsanli, Kutahya, Turkey.
T.: +90 2746142000 F.: +90 2746143798 GSM: +905058443004 E-Mail: drharunagca@yahoo.com

Introduction

Hepatitis A virus (HAV) is a ribonucleic acid (RNA) picornavirus transmitted by fecal-oral route, either from contaminated food or water or from person to person. The clinical manifestations vary with the age and it's severity and fatality increase with the age [1]. HAV is usually silent or subclinic in children and on a worldwide scale only 5 % of infections are recognised clinically [2]. Asymptomatic infection is more common in children under 6 years [3]. The mean incubation period is 30 days ranging from 2 to 6 weeks. The infection usually results in an acute self limited illnes and rarely leads to fulminant hepatic failure. Approximately 85 % of infected patients have full recovery in 3 months and have complete recovery by 6 months[4].

HAV is endemic in Southeast Asia and many parts of the world. The epidemiologic patterns vary, although the differences are linked more to socioeceonomic conditions than actual geographic regions. In countries where a lack of adequate sanitation and poor hygiene practices, facilitate the spread of infection, subclinical infection is common and most of the children get immune by the age of 10 years. In developed countries with high standards of hygiene or sanitation, infection is uncommon in the young and the infection is usually acquired in travels to endemic areas [5,6]. The age spesific prevalance of antibodies to HAV in developed countries therefore tends to be a sigmoid curve, with a low prevalance among children and a high prevalance among the elderly [7].

Determination of anti-HAV antibodies in a population provides more reliable estimates of HAV infection prevalance [8]. In this study we aimed to determine the seroprevalance of HAV seropositivity in two different hospitals in the Aegean region of Turkey.

Material and Method

Serum samples, which were taken from patients to investigate hepatitis A antibodies administrated to Usak State Hospital and Tavsanli Doc. Dr. M. Kalemli State hospital between January 2011 and December 2011 were investigated for hepatitis A seropositivity retrospectively. Age, sex, Anti HAV Ig G and Anti HAV Ig M were investigated. The patients were classified among their ages (0-5, 6-10, 11-20, 21-30, 31-40, 41-50, 51-60 and over 61 years of age). Anti HAV Ig G and Anti HAV Ig M were investigated by Architect i2000 sr (Abbott, USA) in Usak State Hospital and by Axsym (Abbott, USA) in Tavsanli State Hospital by the chemiluminescence microparticle immunoassay (CMIA).

Statistical analysis was made by using SPSS v17 for Windows.

Results

799 patients in Usak State Hospital and 461 patients in Tavsanli State hospital were investigated for HAV Ig G and HAV Ig M. 625 of the patients (78 %) were female, 174 (22 %) were male, mean age was 27,7 (between 5 months and 86 years of age) in Usak State Hospital. 247 of the patients (54 %) were female, 214 (46 %) were male, mean age was 38,0 (between 1 month and 95 years of age) in Tavsanli State Hospital. Anti-HAV Ig M positivity in Usak and Tavsanli State Hospital are 1,3 % and 0,6 % respectively. Anti-HAV Ig G positivity in Usak and Tavsanli State Hospital are 75,5 % and 80,4 % respectively. Seropositivity among the groups are shown in Table 1. There was significant difference between age groups in both of the hospitals; Anti HAV Ig G seropositivity in 0-10 years of age group was significantly lower than that of the group older than 10 years group ($p<0,05$). There was no statistically significance between the age groups of Tavsanli and Usak State Hospitals.

Age group	n	Anti HAV IgG positivity in Usak n (%)	n	Anti HAV IgG positivity in Tavsanli n (%)
0-5 years	53	9 (16.9)	12	3 (25)
6-10 years	44	10 (22.7)	14	2 (14.2)
11-20 years	116	65 (56.0)	54	26 (8.1)
21-30 years	334	278 (83.2)	89	69 (77.5)
31-40 years	142	137 (96.4)	90	82 (91.1)
41-50 years	39	36 (93.3)	81	77 (90.5)
51-60 years	38	36 (94.7)	73	67 (91.7)
>61 years	33	33 (100)	48	45 (93.7)
Total	799	604 (75.5)	461	371(80.4)

Table 1. Anti HAV Ig G seropositivity among age groups (n: number of patients)

Discussion

To our knowledge this is the first study that investigated the seropositivity of HAV in Usak and Tavsanli. Among the age groups, seropositivity is low in the first 10 years (19,6 % in Usak and 19,2 % in Tavsanli). Seropositivity increases up to % 100 over 61 years in Usak and 93,7 % in Tavsanli.

Kanra et al. [9] reported that HAV seroprevalance was 71,3 % in the sera of 4462 subjects under th age of 30 in Turkey. They also reported that HAV seroprevalance in children under 10 years as 50 %.

Akbulut et al. [10] reported that the seroprevalance of HAV was 72,5 % in 0-18 years group of children. Colak et al. [11] reported the seropositivity of HAV as 19,9 % in 0-5 years group and 43,9 % in 6-12 years children. Sencan et al. [12] reported the seropositivity in 0-6 years children as 44,4 %.

Okur et al. [13] reported that the HAV seropositivity as 69,9 % in children between 0-18 years. They reported that the seropositivity was lower in 0-2 years group (53,1 %). They also reported that the seropositivity was increasing with the age and rising up to 92,3% in 16-18 years group.

Kurugol et al. [8] reported that the seropositivity under the age of 30 is 23,9 % in Cyprus. They also reported that the indicators of lower socioeconomic status like low family income, crowding, absence of waste water sewage and lower education of parents were significantly associated with higher anti-HAV prevalance.

Seropositivity of HAV may vary according to the geographic region and the socieconomic status of the countries. Lee et al. [7] reported that the HAV seropositivity was 25,9 % in Singapore. Strict control of food import by the authorities and public health education on the risk of consuming shellfish and raw and half-cooked food decreased the seropositivity of HAV IgM from 1,8 % in 1989 to 0,7 % in 2001. Lee et al. [14] reported that the seropositivity of HAV Ig G was 53,8 % in Korea. They showed that the prevalance was increasing with the age, but the subjects aged 20-29 was showing the least amount of seropositivity. The change in seropositivity was associated with the development of Korea accompanied by an improvement in

individual and social hygiene [14,15]. Pham et al. [16] showed that the seropositivity of HAV in Canada was 1% in 8-13 ages group and increasing up to 17 % in 30-39 years group. These results are lower than those obtained from our country and also from those obained from Cyprus, Singapore and Korea. These results show that HAV seropositivity is related with socioeconomic factors which have influence on hygiene. Homosexuality, travel to endemic area were found related with the seropositivity. The major risk for low endemic countries is an outbreak of the infection[16,17].

This study shows higher seropositivity than more developed foreign countries, similar to other studies from Turkey. The results of Anti HAV Ig G in the 0-10 and 11-20 years groups are lower than other studies from Turkey [9-13]. This may be due to the fact that Aegean region is more developed and personal hygiene is better than the other parts of Turkey. Public and personal hygiene has remarkably improved in the last decade in Turkey by the socioeconomic development. There is a minor decrease in the 41-50 years group which is not statistically significant.

Anti HAV Ig G seropositivity in Tavsanli is higher than Usak. This may be due to the mean age, which is greater in Tavsanli and also due to the socioeconomic development of a province than a town.

Improvement of public and individual hygiene, education about hygiene, improvement of education and socioeconomic level of public and vaccination against HAV as recommended by the World Health Organisation may decrease the burden of HAV infection.

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