The Turkish Journal of Occupational / Environmental Medicine and Safety

2017; Volume 2, Issue 1(3): 238-241 Web: http://www.turjoem.com ISSN : 2149-471

A WATER-BORN HEPATITIS FACTOR: HEPATITIS A VIRUS

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ABSTRACT

Hepatitis a vırus (HAV) is majör publıc health problems in developing countrıes in the World. It's most common viral hepatit diseas as serious ratio lead to mortalıty and morbıdıty.In today worlds, hiygen and sanitation practıce get better and elematary family structur more common, thıs condıtıons lead to seronegative young people and decrease hav cırculation in toddlers.Purpose of thıs compılatıon,take attentıon for great adult communıty, whıch susceptıble for thıs ınfectıon and have hıghly complıcatıon ınsıdans and hav contamination ways.

Keywords: hepatit a virus, vaccinatıon, water-born disease

INTRODUCTION

HAV (Hepatitis A Virus) was defined as "epidemic hepatitis" for the first time by Hippocrates, and in 1940s, it was understood that it was an infection different than hepatitis B. Humans are the primary reservoirs of this virus. HAV is a virus from picornaviridae family. It is resistant to low pH (gastric acidity), however, it is inactivated in high temperatures, formalin, and chlorine. HAV can survive for years in -20°C, for months in the fridge, and for days in organic substances (1, 2). HAV can survive for months in fresh water, spring water, sea water, and in marine crustaceans.

While HAV causes inflammation in hepatocytes, it does not lead to any significant damages in other organs. Unlike hepatitis B and C, hepatitis A infection does not lead to chronic liver disease, and it becomes fatal seldom, if ever, however, it may cause weakening symptoms and may cause acute liver failure related to high mortality (3).

HAV is a fecal-oral borne virus with prevalent infections (2). The existence of this virus in the excrement of infected individuals for more than six months becomes the most significant source

of the spread of infection in unfavorable sanitary conditions. Today, the prevalence of restaurant culture, consumption of uncontrolled food sold by street vendors, prevalence of day care centers and nursery schools for children, dormitories and multi-dwelling units shared by a large number of adolescent students, and increasing number of travelers pave the way for this old disease to survive.

EPIDEMIOLOGY OF HEPATITIS A INFECTION

Hepatitis A virus (HAV) is the most common acute viral hepatitis factor in the world. Due to the high asymptomatic transaminase levels of subclinical form of the disease and the existence of unreported and unspecified cases, it becomes difficult to determine the real disease incidence. The number of reported cases throughout the world is approximately one million and four hundred thousand in a year (3).

According to frequency of the cases of hepatitis A, the world is divided into three groups as regions with high, medium, and low endemicity.

In highly endemic regions (Africa, Asia, Central and South America), more than 90% of children under 10 years of age are seropositive.

In regions with medium endemicity (Southern and Eastern Europe, some regions in the Middle East, and a large part of the developing countries), more than 80% of individuals under 20 years of age are seropositive.

In regions with low endemicity (the USA, Western Europe, Norway, Japan, Australia, and Canada), around 70% of children under 15 years of age are reported to be seropositive (6).

Turkey is ranked among regions with medium endemicity in terms of hepatitis A infection. Although it changes in terms of age and regions, it is stated that anti-HAV IgG seroprevalence in Turkey is between 85-100%. However, anti-HAV IgG seropositivity in adolescent individuals is low, Turkey is ranked among countries with medium endemicity (2).

HAV seroprevalence has recently been decreasing in many countries in the world except for the underdeveloped and some developing countries. This decrease correlates with provision of fresh water, social hygiene awareness, high socioeconomic and educational levels, and the vaccination policies of the developed countries. This disease occurs frequently in the first couple of years of life in underdeveloped and developing countries and the rate of seroprevalence reaches up to 100% in age 1. In regions with medium endemicity, the encounter with this virus occurs later in life, and thus, acute HAV cases are mostly seen in adolescents and adults. The individuals with this disease in this age group suffer more severely and hepatitis A outbreaks may occur (4, 5).

MODES OF TRANSMISSION OF HEPATITIS A INFECTION

Hepatitis A virus transmits primarily through fecal-oral way. Here, the source could be contaminated food or water, or direct contact with an infectious individual. The source could not be determined in approximately 50% of food-borne cases (8). Products, such as marine crustaceans, raspberries, strawberries, pastry/confectionary products, salads, sandwiches, raw vegetables, ice cream, cheese, rice pudding, juices, bread, cream, and raw milk play a significant role in Hepatitis A outbreaks (9, 10).

Metabolically, marine crustaceans feed by filtering sea water, and thus, they may contain many active ingredients. Marine crustaceans, which are cultivated or hunt in polluted waters, pose a significant problem in terms of hepatitis A outbreaks (11, 12). Approximately 7% of the hepatitis A cases reported throughout the world are associated with consumption of marine crustaceans (13).

Contamination of raw vegetables and fruits take place in processing, cultivation, and distribution phases of the products. Contamination usually occurs when the products are prepared by infected personnel under improper and insanitary conditions, or when sewage water is used for agricultural irrigation (10, 14).

CHANGING EPIDEMIOLOGY OF HEPATITIS A INFECTION AND PROTECTION IN TURKEY

Since maternal antibodies disappear at the rate of 70-100% in babies over 15-18 months old, children become sensitized to HAV infection and this age group plays a significant role in hepatitis A epidemiology. However, the improved hygienic conditions and living conditions put off HAV encounter to later ages. This shift increases the number of seronegative adolescents-young adults with high-risk for symptomatic disease (16). In the last 10-20 years, hepatitis A virus epidemiology has shown a "shifting pattern" including many Asian and Middle Eastern Countries (17, 18). In recent studies in Turkey, it is observed that the HAV seroprevalence has increased with age, and the age of HAV infection encounter has shifted to young adult period (15). The ratio of sensitive adults that increased due to this shift leads to outbreaks.

In a study that Kanra et al. conducted in 1998, it was observed that the Western cities in Turkey showed similar rates of seropositivity with developed countries. On the contrary, it was reported that the rates of seropositivity were observed in earlier ages in Eastern and Southeastern Regions; a pattern similar to developing countries. These regions fall into the definition of hyper-endemic regions (19). The risk of outbreaks for sensitive young adults will eventually increase with immigration.

For protection, WHO recommends improvement of sanitary conditions and health education, as well as large-scale vaccination programs since a great deal of adults living in regions with medium endemicity are sensitive against HAV (Table 1). Figure 1

Endemicity	Countries	Characteristics	WHO's Recommendations
High	• Developing • Poor health conditions	• Infection in early childhood • Rare outbreaks	HAV vaccination is not recommended.
Medium	• Developing transition economies • Regions with different health conditions in industrialized countries	• Infection pulled through in early childhood • Improvement in health/economic conditions may increase clinically significant Hepatitis A rates	Sanitary improvement and vaccination programs for children are recommended.
Low	• Industrialized	• Generally low infection rates	Vaccination for individuals under risk (Selective vaccination)

Who position paper on hepatitis A vaccines. Weekly Epid. Rec 2000;75:38-44

ACIP (Advisory Committee on Immunization Practices) has been recommending vaccination for all children between 12-23 months of age as from 2005. The Committee also recommends vaccination for children, who have not been vaccinated until two years of age, as soon as they are diagnosed with the disease, and recommends that this program should cover everyone between 2 and 18 years of age (21). Turkish Ministry of Health included Hepatitis A vaccination into routine vaccination program in 2012 and the first dose is administered at the end of 18th month, and the second dose is administered at the end of 24th month. In addition, the seronegative healthcare professionals, who work in regions under risk, are also vaccinated within the scope of the risk group.

Another significant aspect for protection is to raise social hygiene awareness and to improve sanitary practices. The awareness for individuals, who live in multi-dwelling units with the risk of hepatitis A infection, the employers and employees in food industry, the individuals, who will travel to endemic regions, and the individuals, who work in risk-bearing work sites in terms of hepatitis A, should be raised and they should be vaccinated if necessary.

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