The frequency of IgM-anti HAV in the sera of patients with hepatitis in Iraq

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Abstract:

Three hundred and fifty five patients with hepatitis were investigated in this study all cases gave negative result with HBs Ag , IgM-anti HCV , IgM-anti HEV, IgM-anti HDV and anti-HIV tests . The frequency of IgM-anti HAV was 113 and the percentage was 32 % in all ages but when these patients divided into five groups dependent on ages. The highest percentage of IgM-anti HAV was (45%)   in age <10 and the percentage declined with age increase till to 9% in age >41 year.

Introduction:

Hepatitis A virus is a distinct member of the picornavirus family and it is belong to Hepatovirus genous, it is a $27 - 32$ nm spherical practical with cubic symmetrical. Only one serotype is known and there is no antigenic cross reaction with HEV or other hepatitis viruses (1, 2). HAV is wild spread throughout the world; outbreak of type A hepatitis is common in families, institute, summer camp and military troops. (1).The most likely mode of transmission under these conditions is by fecal –oral route through close personal contact under crowded condition and poor sanitation. (1, 2).HAV infections occur at an early age most children in such circumstances become immune by age 10 years (3, 4, 5) Clinical illness is uncommon in infants and children. Disease is most often manifest in children and adolescents, with the highest rates in those between 5 and 14 years age, (5) evidence of past infection differ between adult (~ 40 %) and children (~ 10 %) and suspected school age years. (6). Fecal excretion of HAV antigen and RNA persists longer in the young than in adult (1). HAV is seldom transmitted by blood (1). Sensitive serological assay (Anti HAV-IgM) and polymerase chain reaction (PCR) methods are the best method s for detection of HAV in patient sera and stool (1).The aim of this study is finding the data of the percentage of HAV infection and attempt to find the high incidence HAV infection age in Iraq.

Materials and methods:

Patients: Three hundred and fifty five patients were collected from Central laboratories of public health in Baghdad (ministry of healthy in iraq), all cases were suffered from jaundice, The patients were divided into four groups $\leq$ 20 year, (37 cases), $21 - 30$ years (198 cases), $31 - 40$ years (105 cases) and $\geq$ 41 year (12 cases). None of the investigated subjects experienced accidents or a mechanical stress which could have caused the jaundice. No one of cases has any antiviral or immunosuppressive drugs.

Samples: Five ml blood was collected in plain tube and the sera collected and store at $-20^{o}C$ till serological examination.

Enzyme Linked Immunosorbent assay (ELISA): This method was used to detect of IgM anti-HAV (Dade Bearing

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Merburg**),** IgM -anti HBc (Bio Kit, span),HBs Ag (Bio Kit, span), IgM-anti HDV(Bio Kit, span), IgM-anti HEV (Dade Bearing Merburg), IgM-anti HCV(Bio Kit, span) and Anti HIV-1(Bio Kit, span).

Statistical analysis: Excel program was used in data analysis.

Results and discussion:

All positive cases with IgM- anti HAV gave negative result with HBs Ag , IgM-anti HCV , IgM-anti HEV, IgM-anti HDV and anti-HIV tests and therefore these causative agents were excluded as a cause of jaundice (hepatitis) in the investigated samples. The highest frequency of IgM- anti HAV positive percentage was observed in the age (< 10 year)(45 %)but this percentage showed negative relationship with increasing of ages till 9% in age (>40 year). The frequency of IgM- anti HAV positive percentage was 32 % in all ages. See table (1).

Table-1- Frequencies of IgM –anti HAV in hepatitis patients with different age groups using ELISA.

Ages in years	TOTAL	Anti HAV-IgM +	Positive percentage	Anti HAV-IgM -
<10	121	54	45%	67
10 ---20-	68	26	38%	42
21 - 30	71	20	28%	51
31 - 40	51	9	18%	42
>41	44	4	9%	40
all ages	355	113	32%	242

The result that obtained from this study is going on with most results that observed from many investigators (6, 7, 8, 9). On the basis of surveillance data, children 5 – 14 years historically have the highest incidence of hepatitis A (8). Although the incidence of HAV infection is probably highest among those < 5 years old (9). Relatively few

report cases 2 % - 3 % per year and identified though routine surveillance are part of common source outbreak of disease transmitted by food or water . however some hepatitis A transmission attributed to personal contact or other risk factor is likely to have been food borne , occurring when an hepatitis A virus – infection person contaminated food eaten by others (5). The proportion of sporadic cases that might by from food born sources is unknown but could be considerable ~ 50 % of reported patients with hepatitis A do not have an identified source of infection. (4, 8). In developing countries hepatitis A virus transmission often is unrecognized, because most residents acquire hepatitis A virus infection during early childhood (5). Food born outbreaks of infection are uncommon in developing countries because of high levels of immunity in the resident population but we can not neglect the role of the pollution in transmission of this virus in developing countries, but food born transmission to non immune travelers might be an important source of travel – associated hepatitis A (1, 5). Asymptomatic HAV infection without clinical signs and symptoms of hepatitis A   is common in children and <10 % of children age < 6 years with HAV infection have jaundice (5). Children and occasionally young adults can also have unapparent infection, in which symptoms and elevation of Alanine aminotransferase (ALT) level are absent but seroconversion occurs. From above the outbreak of HAV in children is high because the most cases without symptoms so the detection of HAV infection in children is difficult. In our country the high percentage of HAV infection happened because the inactivity of vaccination program.

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تكرار اضداد صنف ميو لالتهاب الكبد الفيروسي نمط أ في المرضى الذين يعانون من التهاب الكبد في العراق

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الخلاصة:

تضمنت الدراسة ثلاث مائة وخمسة وخمسون مريضا يعاني من التهاب الكبد . جميع الحــالات اعطــت نتيجة سلبية مع الاختبارات الاتية مستضدات سطح فيروس التهاب الكبد نمط –ب- و اضداد صنف ميو لكل من التهاب الكبد نمط س , التهاب الكبد نمط الفا , التهاب الكبد نمط دلتا و اضدا فيروس العــوز المنــاعي . عــدد العينات التي تحمل اضداد صنف ميو لفيروس الكبد نمط أ كانت 113 وكانت النسبة لكل الاعمــار 32% و عنــد تقسيم الحالات حسب العمر وجد ان اعلى نسبة في الفترة العمرية 10< (45%) ووجد ان هذه النسبة تنخفض مع تقدم العمر لتصل الى 9% في الفترة العمري في الفترة العمرية > 41 سنة .