Incidence Of Hepatitis A Virus Igm Among Residents Of Konduga Local Government Area, Borno State, Nigeria

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Abstract: The incidence of HAV infection was assessed in 100 sera of male 44 (43.6%) and female 56 (56.4).The age range of subjects in the study is 3-80 years, with mean (±SD) age of 22.7±12.7 years. A total of 2 subjects were positive for HAV giving a prevalence rate of 3.5%. Two females were positive, 2(2.0%) and 0(0.0%) male , despite this there was no significant difference according to gender, meaning that HAV infection is not gender bias. All the two of the positive cases were also positive for fever only, indicating that when looking for HAV infection, patients with fever are the mostly likely suspects to be considered. The age group 0-10 and 11-20 with 1(4.2%) and 1 (3.7%) positive cases respectively were the age groups having positive cases, though there was no significant difference indicating that HAV virus can infect any age group.

Introduction

Hepatitis is a general term that means inflammation (irritation and swelling) of the liver, inflammation of the liver can result from infection, exposure to alcohol, certain medication, chemicals, poisons, or from a disorder of the immune system (McGraw et al, 2006).

This refers to liver inflammation caused by infection with the hepatitis A virus (HAV). HAV is one of the several viruses that can cause hepatitis, and is one of the three most common hepatitis viruses in the united state (Ryan et al; 2004).

The other two common types are hepatitis B and hepatitis C; however, there are other named types such as D,E,F and G, their infections are same, however unlike hepatitis B and hepatitis C, HAV does not cause chronic (ongoing, long term) disease. Although the liver becomes inflamed and swollen, it heals completely in most people without any long term damage once a person contacts hepatitis A, they develop lifelong immunity and the virus tends to occur in epidemics and outbreaks, as many as 1 in 3 adult (>age 19) in the united state have antibody to HAV, meaning they have been exposed to the virus, but most do not become ill (Ryan et al, 2004)

Hepatitis A(formerly known as infectious hepatitis and epidemical virus) is an acute infectious disease of the liver caused by the hepatitis A virus (HVA)” (Ryan et al, 2004),it is an RNA virus, usually spread via the faecal oral route, transmitted person to person by ingestion of contaminated food or water or through direct contact with an infection person. Tens of millions of people become infected with Hepatitis A each year (Wesley et al, 2006). The time between infection and the appearance of the symptoms (the incubation period) is between two to six weeks and the average incubation period is 28days,” (Connor, 2005).

Materials And Methods
Study Area.

The area of coverage during this investigation is Konduga Local Government Area. It has it headquarter at konduga town which is located 30kms away from Maiduguri the Borno state capital and also Midway between Maiduguri metropolitan and Bama Local Government ,on trunk **A** road which lead to Yola and Jalingo the Adamawa and Taraba state respectively, and down South east of Nigeria. Konduga belong to the First class generation of Local Government reform in Nigeria in the year 1976. The local government is made of four districts namely, Konduga, Dalari, Auno, and Masba districts. All together the local Government has eleven political wards.

Archeologically, study has indicated that Konduga as a settlement exist for thousands of years and it has been Famous as a centre of Islamic Scholar headquarters since the adjunct of EL-Kanemi dynasty.

Konduga Local Government has an area of 5825 Square Kilometers. It is coordinated between $11^0$39'6N and $13^0$25'10E, located in the North eastern part of Nigeria. The climate is tropical temperature ranges between 29^oC and $38\ ^oC$. Most of the sampled population are Nomads, Fishermen, Hunters and subsistence Farmers.

Konduga Local Government is bounded with Maiduguri metropolitan council. Bama Local Government to the south, Marte Local Government to the east Maiduguri Local Government in the North as well as Kaga and Damboa respectively

It has projected population of 134,000 in 2006. The people of Konduga are predominantly Kanuri speaking tribe, along with other ethnic group like Shuwa Arab, Fulani, Hausa, Marghi, Mulgwai and Gamargu, some Igbo base and Chadian's origin.

The Sambisa game reserve which is of the Chad basin National park is also situated in Konduga. The game reserve is one of the tourist attractions in Borno State inhabited by numerous species of Yankari game reserve to the south, and Cameron national park to the east.

Study Population;

The sampled population investigated were 100 and were within range of 5 months to 85years. They were studied because of the prevalence of Hepatitis A virus IgM among their ages.

Method Of Sample Collection And Processing

FIVE (5) ml of blood were drawn from each person through venupuncture into sterile clean containers, it was allowed to settle and the sera separated into labelled microvials. The vials were stored frozen at -20^oC until tested.A total of 100 samples were collected

Principles Of The Test

The quick one-step test utilizes a sandwich immunoassay system and the immunochromatographic detection assay, to be performed in one assay. If HAV antibody is present in the sample in concentration above the detection, a labeled antigen-dye complex will be formed. This complex is then captured by antibody immobilized in the Test Zone of the membrane, producing a visible pink-rose color band on the membrane. The color intensity will depend on the concentration of HAV antibody in the sample.

Interpretation Of Results

Negative: Only one pink band appears on test region of the cassette. This indicates that there is no detectable anti-HAV IgM in the serum.

POSITIVE: Two pink bands appear on test region of the cassette. This indicates that the specimen contains detectable amount of anti-HAV IgM.

INVALID: If without coloured bands appear on the test region, this is an indication of a possible error in performing the test. The test should be repeated using a new device.

Storage And Stability

The test kit can be stored at room temperature (18 to 30^oc) in the sealed pouch in the date of the expiration. The test kit should be kept away from direct sunlight, moisture and heat.

Results

The demographic representation of the study population is as shown in Table1. The study involved both children and adults. A total of 100 consisting of 44 (43.6%) males and 56 (56.4%) females were studied. They were in the age range of 3 – 80 years with mean (±SD) age of 22.7±12.7 years.

Table 1. Demographic representation of the study population

Variables	frequency	percentage	mean ± SD	Range
Age (years)	-	-	22.7±12.7	3-80
Sex (Males)	44	43.6	-	-
(Females)	56	56.4	-	-
TOTAL	100	100		

Table 2 shows that the two patients with HAV infection were in the age groups of 0-10, 1(4.2%) and 11-20, 1(3.7%), none positive in the other age groups, there however was no significant difference among the age groups (x^2=66.65, df=1, p=0.219).

HAV is more prevalent among females 2(3.5%) compared to males 0(0%), however there was no significant difference among the males and female (x^2=1.575,df=1, p=0.128) as shown in Table 2.

Table 2 all shows that HAV infection is most prevalent in patients that presented with fever alone 2 (5.2%), all the others are negative, despite this there was no significant difference (x^2=3.24,df=1,p=0.113).

Table 2. Incidence of HAV infection according to different variables

Variables	Total number tested	positive	percentage occurrence
AGE (years)			
0-10	24	1	4.2
11-20	27	1	3.7
21-30	33	0	0
31-40	10	0	0
41-50	3	0	0
51-60	1	0	0
61-70	1	0	0
71-80	1	0	0
Sex			
Male	44	0	0
Female	56	2	3.6
Symptoms			
Fever	39	2	5.1
Vomiting	4	0	0
Chicken.pox	1	0	0
Abdominal pain	1	0	0
HIV (seropositive)	1	0	0
Diarrhea	2	0	0
Pregnancy	2	0	0
Syphilis	43	0	0
Anaemia	2	0	0
Join pain	1	0	0
Blood donor	4	0	0

Figure 1 shows the distribution of the number of samples collected per age group,age groups 21-30 has the highest 33(33.0%), followed by 11-20, 27(27.-%), with the least having one each in age groups 51-60,61-70 and 71-80.
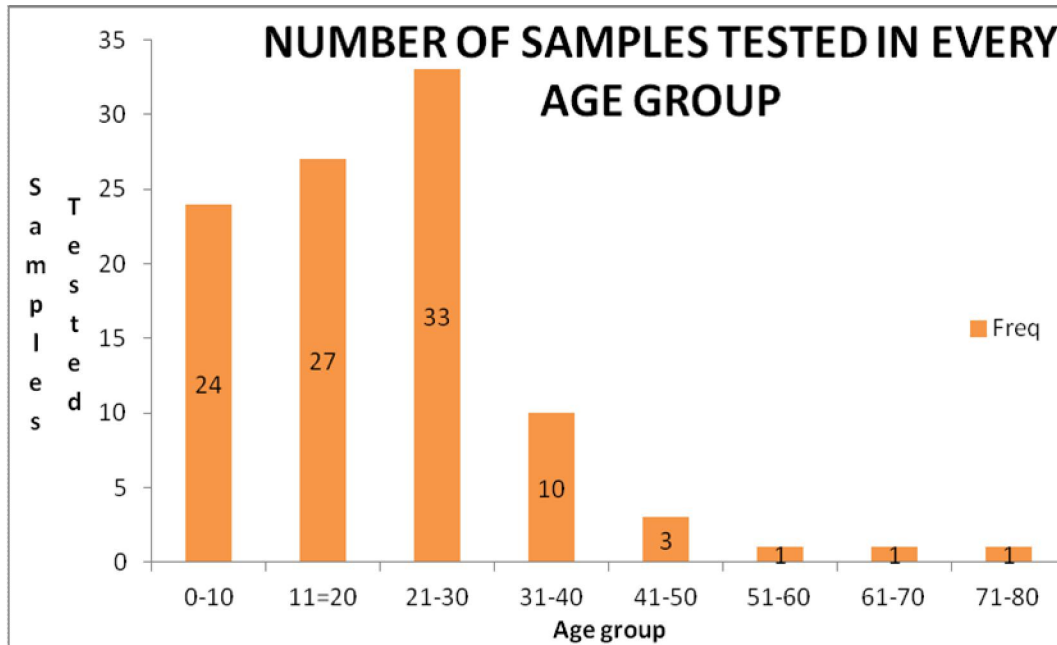

Figure 1. Showing the number of sample tested in different age group

Discussion

100 sera of male 44 (43.6%) and female 56 (56.4%), the demographic representation of the study population is as shown in Table1. The study involved both children and adults. They were in the age range of 3 – 80 years with mean (±SD) age of 22.7±12.7 years.

A total of 2 patients were positive for HAV IgM giving a incidence of 2.0%. Two females were positive, 2(3.6%) and 0(0.0%) male , despite this there was no significant difference according to gender, meaning that HAV infection is not gender bias. All the two of the positive cases were also positive for fever only, indicating that when looking for HAV infection, patients with FEVER are the mostly likely suspects to be considered. The age group 0-10 and 11-20 with 1(4.2%) and 1 (3.7%) positive cases respectively were the age groups having positive cases, though there was no significant difference indicating that HAV virus can infect any age group. Table 2 shows that the two patients with HAV infection were in the age groups of 0-10, 1(4.2%) and 11-20, 1(3.7%), none positive in the other age groups, there however was no significant difference among the age groups (x^2=66.65, df=1, p=0.219).

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Conclusion

This work shows that HAV infection give rise to unset of fever, and most fevers of unknown original could be associated with HAV infections

Recommendations

There should be more awareness on the infection of HAV and introduction of vaccination for HAV

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