Epidemiology of Hepatitis B-virus in Nineveh province: Retrospective Study

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Abstracts: The purpose of the study was to determine the incidence and epidemiology of the ten-year hepatitis B virus type (2011-2020).The province of Nineveh's hepatitis (B) prevalence was calculated using a retrospective analysis. The study's time frame is (2011 2020). The data collection mechanism was adopted by the Nineveh Health Department, the public sector, the Communicable Diseases Unit, through the records in the unit, for a period of ten years, from 2011 to 2020.The age, sex, residence and occupation of the infected were determined, and those infected with hepatitis B virus. For the analysis of the data "frequency, percentage" descriptive and inferential statistical methods were used.The study's findings revealed that the proportion of men was approximately (70.892%) larger than that of women, and that the age range with the highest viral hepatitis infection rates was between (1-60) and by (34.978%). The average age was (52.2+2.65).This study concluded that the infection rate among the elderly was much higher than that of children and adults. The reason is that elderly people have much lower immunity than adults, so they are more susceptible.

Keywords: Epidemiology, Hepatitis B, Retrospective study.

1. INTRODUCTION

Typically, the virus spreads from mother to infant during labor and delivery when touch with blood or other body fluids of an infected individual occurs, such as during contact with an infected partner, unsafe injections, or publicity to sharp objects in a medical facility or public area, and in people who inject drugs [1,2]. In 2020, 7.8 million (31%) of those who were diagnosed with hepatitis B were undergoing treatment, while 31.7 million people (an estimated 10% of all people living with hepatitis B) were aware of their diagnosis. The percentage of children under the age of five who have chronic hepatitis B virus infection has decreased, according to the most recent estimates from the WHO, from about 5% in the pre-vaccine era, which covered the 1980s and early 2000s, to just under 1% in 2019. Despite the existence of a highly effective vaccination, the WHO estimates that there are approximately 1.5 million new hepatitis B infections annually in 2019. Safe, effective, and accessible immunizations against hepatitis B can help prevent the disease, as can preventive antiviral medication during pregnancy [3]. Moreover, HBV carriers might spread the illnesses for a very long time. Early childhood is the most common time for infection, when it is asymptomatic and frequently results in the chronic carrier condition[4]. Hepatitis B virus (HBV) infection remains a significant global public health problem despite the existence of a very effective vaccine and improvements in antiviral therapy. Around 350 million of the two billion previously infected individuals worldwide have chronic HBV infection, which results in one million HBV-related deaths annually. Geographic differences in the prevalence of chronic HBV infection range from 0.2% to 20%. Over 45% of the world's population resides in regions with a high prevalence of endemic diseases, such Africa and the Asia-Pacific region "excluding Japan, Australia and New Zealand"[5]. Research in the Middle East revealed that Egypt had an HBs Ag prevalence of between 3% and 11% [6] .The best defense against HBV infection and its effects is hepatitis B vaccine. The significance of identifying infected people is highlighted by the fact that antiviral medications are available for those who have already contracted HBV and may prevent the devastating consequences of chronic liver disease. With a rate of 3%7, HBV was moderately prevalent in the Iraqi population [7] . Increased the number cases of hepatitis B in Nineveh governorate especially between health worker by person itself or from uncarful or mis use of needle or sharp scalp during introducing management this will lead a new cases and loss of experience health team especially in area of kidney dialysis, burn unit, surgical theater and last will cost or made burden on the health agencies and local governorate.

2. MATERIEL AND METHODS

Nineveh Governorate is a governorate in northern Iraq, its center is the city of Mosul, the second largest city in Iraq, with an area of 37,323 square kilometers (14,410 square miles) and an estimated population of 3,729,998, according to the 2018 census. About half of them live in the city of Mosul, while the rest are distributed among the rest of the cities and districts.This study was conducted in Iraq, Nineveh Health Department, public sector, communicable diseases unit, and included a retrospective study of people infected with viral hepatitis B through the records available in the communicable diseases unit for a period from 2011 to 2020, i.e. for ten consecutive years, the ages of The target sample is from (1 to 60) years old. The period of sample collection lasted for a full month, from the first of January 2023 to the first of February 2023.The study was designed by experts in the medical and nursing fields and was prepared into two main parts: The first part: included demographic information pertaining to the infected persons such as (age, sex, residence and occupation).And the second part: people infected with viral hepatitis type B who were diagnosed positively. This study included all the provinces belonging to Nineveh Governorate. Descriptive statistical analysis was used as well as the program (SPSS VERSION 27) for the purpose of data analysis[8-17].

3. RESULTS AND DISCUSSIONS

Table (1):distribution of the study participant (N=6098)

Variables	No.	Frequency (%)	Mean +SD
(A):Gender			
Male	4323	70.892	
Female	1775	29.108	
(B):Age			
1-10	**562**	**9.216**	**52.2+2.65**
11-20	**327**	**5.362**	
21-30	**867**	**14.217**	
31-40	**1032**	**16.923**	
41-50	**1177**	**19.301**	
51-60	**2133**	**34.978**	
(C): Residence			
Urban	**4614**	**75.664**	
Rural	**1484**	**24.335**	
(D):Occupation			
Free business	**4140**	**67.891**	
Medical staff	**188**	**3.082**	
Retired	**1004**	**16.464**	
Children	**766**	**12.561**	

The results of the demographic information showed that the percentage of males was about (70.892%) higher than the percentage of females and that the most age group infected with viral hepatitis was between (1-60)and by (34.978%), and the average age was (52.2+2.65),Likewise, the injured were higher in the city than in the countryside, i.e. by three-quarters higher than in the countryside. Finally, for people who were at risk of infection, they are self-employed, with a ratio of (67.891).

Table (2): Epidemiology of Hepatitis B virus regard to years (2011_2020)

Variables	Male		Female		Total		X^2	P value
	No	%	No	%	No	%		
2011	312	7.217	134	7.549	446	7.313	32.8	NS
2012	488	11.288	145	8.169	633	10.38	44.7	0.002

2013	506	11.704	72	4.056	578	9.478	67.9	0.001
2014	271	6.268	41	2.309	312	5.116	23.9	0.000
2015	298	6.893	11	0.619	309	5.067	54.7	0.000
2016	282	6.523	32	1.802	314	5.149	44.9	0.001
2017	392	9.067	225	12.676	617	10.118	56.9	NS
2018	636	14.712	343	19.323	979	16.054	63.3	0.003
2019	573	13.254	471	26.535	1044	17.12	61.8	0.004
2020	565	13.069	301	16.957	866	14.201	59.1	0.002
Total	4323	70.892	1775	29.108	6098	100%	49.9	0.002

From the table (2), it is clear that the percentage of males is much higher than that of females in terms of infection with hepatitis B virus. It was found that during the ten years in which the research samples were collected, the highest infection rate was in(2019_2020), respectively and the lowest rate was in 2015.

The majority of HBsAg carriers are found in poorer nations, which have the poorest medical infrastructure. In many areas of Africa and Asia, newborns and children are susceptible to infection, based on the Health Organisation. The overall HBsAg carrier rates may be between 10% and 15%. In countries with the highest standards of living, such as Scandinavia, certain other European countries, Canada, the United States, and Great Britain, the incidence is lowest. Yet, the threat still exists in a number of developing countries. Infectious and inadequately sterilized syringes and needles are the cause of hepatitis epidemics among patients in clinics and medical offices. Acupuncturists and parlors have occasionally been connected to outbreaks. Seldom has it been proven that HBsAg-positive medical staff can spread the illness to patients[18,19].Iraq was the subject of just two sizable retrospective studies and two prospective studies, and the few fully published papers on HBV infections are few and far between because the majority of them focus on risk categories[20]. The current study investigates the prevalence of HBV infections in a varied group of healthy individuals who had common investigations, such as pre-marital exams, employment background checks, or pre-operative preparation, as well as individuals with suspected hepatitis cases[21-23].Our study indicated that the people who aged between (50-60years) constituted (34.978%) more affected with HBV than other age group. Its results are agreement with other study of in Taiwan (2019) the study showed that the prevalence of Hepatitis between age (55-70) years more than (5-15)years. After ten years of widespread HBV vaccination, we discovered 2.7% seropositivity in the same area, which is lower than the 10% of HBSAg positivity found in earlier investigations in other regions. Shows that the majority people who diagnosed with HBV are living in urban area (75.664%). the researcher concluded that the hepatitis B its prevalent more than other types and its effects the male very much than the female that may be the male high exposure to work hazards than women. This study is compatible with many studies in Iraq and found the same demographic information[24-31].Through this study, the researchers concluded that the prevalence rate of viral hepatitis in the city of Mosul was less than 1%, in contrast to that the prevalence rate in Iraq in general was about 3%[32-35]..And that the lowest rate of infection was in the years 2014,2015 and 2016 respectively. The main reason is due to the occupation of the city by ISIS gangs during these years, the weakness of the health system and the lack of medical examinations led to a lack of diagnosis of people with viral hepatitis, while the highest infection rate was in the year 2019.

CONCLUSION

This study concluded that the infection rate among the elderly was much higher than that of children and adults. The reason is that elderly people have much lower immunity than adults, so they are more susceptible. Likewise, the infection rate among men was twice that of women, because men are more integrated with society, and for this reason they are more susceptible.

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