

## Epidemiology of Hepatitis B and C Infection in Msallata city in reference to Age Groups and Genders.

(وبائية الاصابة بالتهاب الكبد بي وسي في مدينة امسلاتة حسب الفئات العمرية و الجنس)

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### المخلص:

أهم أنواع التهاب الكبد الفيروسي هي فيروسات التهاب الكبد سي ودي وإي. أهداف البحث: التعرف على عدد الحالات المصابة في كل من فيروسات التهاب الكبد بي و/أو سي وغير المصابين من حيث الجنس. وحسب الفئات العمرية المصابة بفيروس التهاب الكبد بي أوسي. المواد وطرق الاختبار: أجريت الاختبارات باستخدام تقنية الاليزا . النتائج: أن أعلى عدد من الحالات المصابة كانت ذكورا، بنسبة 2.8% من إجمالي 392 عينة من الذكور. في حين أن الذكور يصابون أكثر من الإناث بنسبة 63.6% من إجمالي عدد الحالات المصابة بفيروس التهاب الكبد بي. أن العدد الأعلى من الحالات المصابة كانت بفيروس التهاب الكبد الوبائي سي. في حين كان الذكور يصابون أكثر من الإناث بنسبة 85.7% من إجمالي عدد الحالات المصابة بفيروس التهاب الكبد الوبائي سي. ولاحظت الفئات العمرية للعينات الفئة العمرية الأعلى المصاب بفيروس التهاب الكبد الوبائي بي حيث كان الفئة العمرية 35-45 سنة أي 7 من الحالات المصابة من إجمالي 14 حالة مصابة. أي بالضبط 50% من الحالات المصابة.

**الكلمات المفتاحية،** التهاب الكبد ب، التهاب الكبد ج، الجنس، العمر.

### Abstract

The most important of viral hepatitis are hepatitis C, D, and E viruses.

**The aims of the research,** to understand number of infected cases with both hepatitis B and/or C viruses and non-infected in terms of genders. also, detected more age infected people groups, and the hepatitis B or C virus infected for both genders.

**Materials and methods,** the tests were carried out using ELISA technique.

**Results,** the higher number of infected cases was males with 2.8 % from 392 samples of males. The higher number of cases was infected with B virus. Whereas, males infected more than females with 63.6% of total number of cases infected by hepatitis B virus. Also, the higher number of cases was infected with hepatitis C virus. Whereas, males infected more than females with 85.7% of total number of cases infected by hepatitis C virus. The age groups of the samples observed the higher age group infected with hepatitis B virus which was 35-45 years, which was 7 infected cases of total 14 cases infected, exactly 50% of infected cases.

**Key words,** hepatitis B, hepatitis C, gender, age.

## INTRODUCTION

The liver is the most important organ of metabolism (metabolism) in the human body, and it is located to the right of the upper abdomen, and everything that can be received from the intestines into the blood is transported to the liver, and there the absorbed parts of the food are converted or stored, so that they are placed at the disposal of the organs Others, the liver has many functions that it performs in the human body [1]. The liver weighs about 1.44-1.66 kilograms, and it is distinguished by its brownish color. It is located above the stomach to the left part and below the lungs. The liver is the largest organ in the human body after the skin.

The liver has many functions that cannot be itemized in this article, and among them protein metabolism, filtering and purifying the blood, enhancing the functioning of the immune system, production of albumins (It is the main protein found in the blood). Moreover, manufacture of the hormone angiotensinogen, which raises blood pressure by narrowing blood vessels [2].

### Problem of study

There are many viral diseases that affect humans, including Hepatitis, which has been known since ancient times and was mentioned in the books of the Greeks and Romans since the nineteenth century BC. Most of the facts related to it were known after a series of from studies and research; viruses were referred to as a major cause of disease, with the beginning of the twentieth century and the identification of hepatitis A and B viruses [1], [2].

The continuation of research during the last three decades of the last century, a number of other viruses that cause viral hepatitis were identified, the most important of which are hepatitis C, D, E, viruses. These viruses, hepatitis A and E viruses, are transmitted by contaminated water and food through the mouth (Oral-Fecal-Route), while the transmission of hepatitis B, C, D, viruses is through contaminated blood and its derivatives and contact blood had borne (Infection) [3], [4], [5].

Hepatitis C is considered one of the most severe and dangerous modern diseases, especially types B and C, which pose a threat to human health and life, as in many cases people do not do a periodic analysis only after they show some symptoms such as fever, fatigue, lack of appetite, nausea, vomiting, abdominal pain, dark urine, pale stools, joint pain, jaundice (yellowing of the skin and the whites of the eyes) and a small subset of people with acute hepatitis can develop acute liver failure that may cause death, and sometimes the disease is detected by chance, through what some patients do of doing analyzes for other purposes, such as making health certificates for the purpose of work or marriage, but they are surprised that they suffer from the disease [2].

Since viral hepatitis can cause harmful consequences for health, prevention and early detection are humiliating. Information about the various forms of viral hepatitis, prevention measures and examinations, as well as treatment and support. Various infectious organisms attack many parts of the body. The liver is infected with them during hepatitis. Viral hepatitis spreads mostly from person to person or Through contaminated foodstuffs, and hepatitis viruses spread widely and varied in many regions of the world, therefore, it is important to estimate the personal risk to you, and to take your origin and special names into account as well, and we would like through this booklet to give you valuable instructions and how you can protect yourselves From infection with hepatitis viruses, which can be done in the case of disease [6].

There are some people who do not show any symptoms during the initial infection of the disease, and others appear to have a rapid development of the symptoms of the disease, and they include (vomiting, yellowing, fatigue, dark urine and abdominal pain), these symptoms often last a few weeks and rarely What primary infection causes death [7], [8].

Symptoms may take from 30 to 80 days, and people who contract the disease at birth have a 90% chance of contracting the disease, while less than 10% of those infected appear after the age of five [6].

Acute infection with hepatitis B and C viruses is closely related to the severity of viral hepatitis, and it has been noted that skin itching may be an indicator of one of the possible symptoms of all types of viral hepatitis, and the disease continues in patients for a few weeks and then develops gradually In the most affected people, chronic infection with hepatitis B and C viruses may be asymptomatic or associated with chronic inflammation of the liver leading to cirrhosis of the liver over several years. This type of infection increases the likelihood of Infection with liver cancer, and a close relationship has been reached between hepatitis B and C viruses and membranous glomerulonephritis [9], [10].

Hence, the importance of this scientific research which studies the prevalence of hepatitis B and C among the visitors to the reference laboratory, Msallata.

### **The Aim of the Study**

To knowing number of infected cases with both hepatitis B and/or C viruses and non-infected cases in terms of genders and numbers.

To determining number of cases infected with both hepatitis B and C virus for both genders.

To detected age groups of infected people, and the hepatitis B or C virus infected for both genders.

### **MATERIALS AND METHODS**

**Sample collection**

The study included patients who attended the reference laboratory,

**Location**

Msallata city (Msallata is a city in the north-western part of Libya, in the Murqub District)

**Period**

The period is ten months (from the beginning of January to October of the year 2022).

**Sample size**

Sample size was determined by tested exactly 1197 cases..

**Target ages**

15-81 years and more

**Target gender**

Both Genders male and female

**Samples type**

The samples were blood drawn from patients

**Tests type**

The blood samples were conducted to detect the surface antigen of hepatitis B virus (HBs (Hg) and antibodies to hepatitis C virus (both antibodies IgG and IgM) on the patients' samples to find out the infection rate among patients as a comparative category.

**Method**

The tests were carried out using the Techniques ELISA technique, according to the Sandwich principle, and the use of hepatitis reactions and solutions (Biorex diagnostics), especially to detect the surface antigen of the hepatitis B virus (Biorex HBs Ag) and antibody to hepatitis C virus (Biorex Anti HCV).

## RESULTS

Exactly, 1197 samples were collected randomly both genders (males and females) from different age groups to detect the presence of hepatitis B and/or C viruses for patients attending the retrospective laboratory, Msllata city in Libyan country, during the time period from January to October 2022, for exactly ten months.

Table (1) Number of infected cases with both hepatitis B and/or C viruses and non-infected cases in terms of genders and numbers

Gender	Not Infected	Infected	Total number
<b>Males</b>	381 (97.1%)	11 (2.8%)	392
<b>Females</b>	798 (98.0%)	7 (0.87%)	805
Total	1179 (98.4%)	18 (1.5%)	1197

Table number one showed the higher number of infected cases was males with 2.8 % from 392 samples of males.

Table (2) Number of cases infected with both hepatitis B and C virus for both genders

Gender	Type of virus		Total number
	B virus	C virus	
<b>Males</b>	7 (63.6%)	4 (36.3%)	11
<b>Females</b>	6 (85.7%)	1 (14.2)	7
Total	13 (72.2)	5 (27.7)	18

Table number two showed the higher number of cases was infected with B virus. Although, males were more infected than females with 63.6% of total number of cases infected by hepatitis B virus. Also, the higher number of cases was infected with C virus. However, males infected more than females with 85.7% of total number of cases infected by hepatitis C virus.

Table (3) the age groups of the samples that were detected, the number of infected people, and the hepatitis B or C virus infected for both genders

Age group in years	Number of sample	Infected / B virus	Infected / C virus
15-25	299	0	2
25-35	491	4	1
35-45	215	7	0
45-55	107	2	2
55-70	40	0	0
70-80	38	1	0
81-and above	7	0	0
Total	1197	13	5

Table number three showed the age groups of the samples. Which observed the higher age group infected with hepatitis B virus was 35-45 years, which was 7 infected cases of total 14 cases infected, exactly 50% of infected cases.

## DISCUSSION

Hepatitis B virus (HBV) is the cause of widely spread infectious disease, especially in resource-limited countries. The extent of HBV infection was not sufficiently spoken [11].

In this study, the overall inflamed instances had been 18 instances of both varieties of hepatitis virus (B & C) out of whole cases 1197 below look at. But, it turned into found that the variety of instances infected with hepatitis B virus for sufferers attending the reference laboratory, Msallata city/ Libya of each genders (male and female) conversely the spreading of hepatitis virus (B & C) in Msallata city. However, more than the cases infected with hepatitis C virus, and that the number of cases varies according to gender. As the number of cases infected with B virus in males was about 11 cases out of 392 cases, with a percentage of 2.8%, and the number of cases infected with B virus in females is 7 cases out of 805 cases, with a percentage of 0.87%.

This study noted that, wide variety of infected cases the varies were according to age groups, where the most affected with hepatitis B virus age group was age group of (35-45) years, as the number of infected cases was eight cases out of total 18 infected cases, then observed by means of the age group of (25- 35) years, where the number of infected people was four cases out of 18 infected cases, as soon as age groups (15-25) and (45-55) have been same inside the number of infected people, which had been instances in each age group. Also, age groups (59 - 69) and (81- and above) did not find any infected case among them.

Seriously, inside the previous studies showed that the mean age of study participants was 44.2 years. Overall, 14 (3.6%) of them were positive for HBV [11] the result of this previous study is relatively different from this study. The explanation for that relatively different between this study and the previous studies, possibly because of weak immunity of people in this age group in this study compared to the previous study, which includes an older age group. In other study had done in USA reported that most cases occur among young adults, many of whom belong to high risk groups [12].

These results for Msallata area have get a consider an area of low endemicity for hepatitis B and C infection, the incidence of new cases, the prevalence of carriers, and the problem of acute and chronic disease place hepatitis B among the most important infectious diseases. The similar results in USA area [12]. In other previous study in Aden city of Yemen found that HBV was 1.5% of all cases under study. It was from 0% - 5.5% in infants to 4.6 - 40% in adults [13].

## CONCLUSION

HBV and HCV still a public health problem in this community, this study concluded that

1. The percentage of infection varies according to gender, i.e. males were more infected than females.
2. The most age group affected was the age group 35-45 years.
3. The cases infected with hepatitis B virus were more than type C.

## RECOMMENDATIONS

Because of HBV and HCV are still public health issues that need awareness and health education on the risky behaviours and transmission so do not share personal items with anyone, because they may be mixed with the blood of a person infected with the disease, such as (razors, toothbrushes and a home glucose meter) and others. This study recommended

- 1- Do not take illegal drugs, especially if you are saving them.
- 2- Not to perform tattoos or piercings in the body in places where they do not sterilize.
- 3- Not taking medical treatments or performing surgeries in places where they do not properly sterilize medical equipment and the place.
- 4- Avoid sharing and repeatedly using injection needles or any other tools used to inject medical substances such as hormones or any other substances.
- 5- Necessity, providing comprehensive services to reduce harm to drug users with contaminated injections.
- 6- Blood test during before blood donation to detect hepatitis B and C viruses.

## REFERENCES

- 1- Alter M. J. (2003) Epidemiology of Hepatitis B in Europ and Worldwide. Journal of Hepatology. 39, 2003, S64-S69.
- 2- Al-Zouki Abdel-Nasser Youssef, (2005) "Chemic viral hepatitis," National Book House, Benghazi 2005, 1: 15-16, 19-20, 27-32, 78-79, 94-97.
- 3- Fenner, F. J & White D. O. (2016) Medical Virology. 3ed edition, Elsevier, 2016.
- 4- Saladin, K. S., MacFarland, C. A. G., Cushman, H. N. (2014) Essential of Anatomy & Physiology. 2ed edition.
- 5- Gan, S. L., Devlin, S. M., Scott-Douglas, N. M. Burak, K. W. (2005), Lamivudine for the treatment of hepatitis B,. Canadian journal of gastroenterology . 10/19: 625-629.
- 6- Hsu, H.Y & Chang, M.H. (2019) Hepatitis B virus infection. Seminars in Fetal and Neonatal Medicine. 12(3): 160-167.
- 7- Jay. M. McDonald. M. D. Raphael ; Rubin, Emanuel Rubin, David S. Strayer. (2008). Rubin's Pathology: Clinic pathologic Foundations of Medicine. Williams & WillISBN 9780781795166. Kins. ISBN 9780781795166.
- 8- Oconnor B. (1999) Researchers Discover New Hepatitis Virus, Lab medicine Int Journal 1999; 16 (4): 6-8.
- 9- Dooley, S. J., Lok, A. S., Garcia-Taso G. Pinzani, M. (2018) Sherlock's Diseases of the liver and biliary system. (2018) 13th edition.
- 10- Bium, H. E. (2016) History and Global of Viral Hepatitis. Medical and scientific publishers. 2016: 34, 4, 293-302.
- 11- Gebrehiwet K., E. Biranu, W. Nigatu, A. Gebreegziabher, K. Desta (2023)., Prevalence of Hepatitis B Virus, Human Immune Deficiency Virus and Associated Risk Factors Among Individuals with Presumptive Pulmonary Tuberculosis Attending at Saint Peter's Specialized Hospital, Addis Ababa, Ethiopia. Infection and Drug Resistance 2023;16, 3965–3979.
- 12- Kane M. (1995), Epidemiology of Hepatitis B Infection in Notth America. 1995: 13, S16-S17.
- 13- Bawazir, A. A., Christopher, M. P., Hart, C. A., Sallam, T. A., Beeching, N., Cuevas, L. E., (2011) Seroepidemiology and Risk Factor of Hepatitis B virus in Aden, Yemen. J. of infection and public health. 2011:4, 1, 48-54.



## Contents

Search title	Page number
probability collectives algorithm for solving knapsack problem Mohamed Alhamrouni Lutfia khalifa	6
ترجمة الأزمنة واتجاهاتها من الإنجليزية إلى العربية أ.محمد عياد حمزة	16
التحديات التي يواجهها طلاب اللغة الإنجليزية بجامعة المرقب أثناء التحدث اسم الباحث: محمد فرج سعيد الدليم	31
(الأدب كوسيلة لتعزيز مهارات الاستماع والتحدث لطلاب اللغة الإنجليزية كلغة أجنبية على المستوى الجامعي بكلية الآداب والعلوم-مسلاتة) Literature as a Means of Enhancing Listening and Speaking Skills for EFL University- level Students at College of Arts and Sciences-Missalata أمنة مفتاح علي عمار	40
( استكشاف تحديات ودوافع الطالبات الجامعيات المتزوجات بقسم اللغة الإنجليزية مسلاتة) Exploring Challenges and Motivations of Female Married Undergraduate Students English Department, Msllata زمزم امحمد زرقون	54
Epidemiology of Hepatitis B and C Infection in Msallata city in reference to Age Groups and Genders. (وبائية الاصابة بالتهاب الكبد بي و سي في مدينة امسلاتة حسب الفئات العمرية و الجنس) Fathi Abdallah Shakurfow, Ali Salam Faraj Edalim	69
Some Biological Effects of Libyan Propolis extract on Male albino Rats Treated with Aluminum chloride Mahmoud Mohamed Howas, Ragab Farag Al-Kazaghly	76