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Article

Prevalence of Hepatitis Viruses in Hospitalized Patients in Thi-Qar Province

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Abstract: Globally, hepatitis is a major public health concern because it causes high rates of morbidity and mortality. Understanding the prevalence of hepatitis among hospitalized patients is crucial for effective healthcare planning and resource allocation. This study aims to investigate the frequency of hepatitis caused by HBV and HCV in hospitalized patients, the risk factors causing it, and the significance of putting preventative measures in place to stop its spread within healthcare facilities. 400 individuals who received care at Al Nasseryiah general hospital between October 2022 and February 2023 were all screened. To ensure that the specimens were randomly chosen, blood samples were periodically taken from various hospital medical wards. The serum samples were then frozen until it was time for the ELISA method examination after being centrifuged to retrieve the serum. All samples were examined for the detection of the Hepatitis B surface antigen (HBsAg) and anti-HCVin accordance with the manufacturer's recommendations. Of the total 400 patients screened 17 (4.25%) patients were positive for HBV and only 5 (1.25%) patients were positive for HCV. The ratio of Female and Male was 1: 2. The majority of the positive results were belonging to patients undergoing dialysis 12 (3%), followed by ICU 3 (0.75%) and lastly ER reported only 2 (0.5%) positive results. Also, the results of the screening revealed a strong positive association between the duration of dialysis and the risks of contracting hepatitis infection. Also, the most effected age group was between 25 to 45 years of age. This study offers significant new information regarding the incidence of hepatitis among hospitalized patients. The results underline the need for focused screening, prevention, and treatment efforts as well as the continuous burden of hepatitis B and C in this community. These findings could help clinicians and healthcare officials apply the best strategies to lessen the effects of hepatitis on hospitalized patients and enhance general health outcomes. To track future changes in the prevalence of hepatitis and its related risk factors, additional study and surveillance are necessary.

Keywords: hepatitis, prevalence of hepatitis, HBV, HCV

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1. Introduction

Hepatitis is a serious inflammatory liver disease caused by viral infections, toxins, autoimmune disorders, or other factors. It affects millions of individuals across the globe and presents a serious public health concern [1]. Hospitalized patients, especially those with compromised immune systems, are particularly susceptible to hepatitis infections. Hepatitis can be classified into several types, including hepatitis A, B, C, D, and E. Each variant is caused by different viruses, and they vary in transmission routes, severity, and prognosis [2]. While contaminated food or water is the main way that hepatitis A (HAV) and E (HEV) are spread, hepatitis B (HBV) and C (HCV) are mainly transmitted through blood and other bodily fluids [3]. Hepatitis D (HDV) is a defective virus that requires HBV

co-infection to replicate and cause disease [4]. Hepatitis infections continue to be a prevalent issue in hospitalized patients, impacting both the patients themselves and healthcare systems as a whole.

The prevalence varies significantly across different regions, healthcare settings, and patient populations [5]. Factors contributing to the prevalence of hepatitis in hospitalized patients include Individuals with compromised immune systems, including those receiving cancer treatments, organ transplants, or HIV/AIDS, are more susceptible to hepatitis infections [6]. Hospitalized patients with a history of intravenous drug use are at higher risk of contracting hepatitis B and C through the sharing of contaminated needles, Blood Transfusions; Although stringent screening measures have reduced the risk, there is still a possibility of hepatitis transmission through blood transfusions, especially in regions with inadequate testing protocols, Unsafe Medical Practices; In some healthcare settings, improper sterilization of medical equipment and lapses in infection control can contribute to the transmission of hepatitis, Healthcare Worker Exposure; Healthcare workers may be exposed to hepatitis infections through accidental needle pricks or contact with infected bodily fluids, putting them at risk of infection and potentially spreading the virus to patients and HCV Outbreaks; In rare cases, outbreaks of hepatitis C have been linked to lapses in infection control practices, leading to multiple patients acquiring the virus within healthcare facilities [7, 8, 9]. This article explores the prevalence of hepatitis caused by HBV and HCV in hospitalized patients, the risk factors contributing to its occurrence, and the importance of implementing preventive measures to curb its spread within healthcare facilities [10, 11].

2. Materials and Methods

A survey study that aims at screening hospitalized patients for hepatitis virus infections. A total of 400 patients attending Al Nasseryiah general hospital from October 2022 to February 2023 were screened. blood samples were collected periodically and from different hospital's wards to insure randomization of the specimens. Then centrifuged to obtain the serum, the serum samples were frozen till the time for the analysis by ELISA technique. All samples were subjected, in accordance with the manufacturer's instructions, to an anti-HCV test using the commercially available MUREX antiHCV (Version 4.0) kit (Abbott Diagnostic Division, RSA).In accordance with the manufacturer's instructions, the Bioelisa Kit (Biokit, RSA) was used to test each sample for HBsAg. An ELISA test kit called the Bioelisa Kit is used to find the hepatitis B surface antigen (HBsAg) in human plasma or sera.

Ethical permission

A formal verbal consent was obtained from either the patient or in some cases their next of kin, official permission was obtained from hospital administration to conduct the study.

Statistical analysis

IBM's Statistical Package for the Social Sciences (SPSS) version 20 was used to manage and analyze the data. The significant relationships between categorical data were analyzed using the chi square test, and the relationships were found using the Pearson correlation coefficient. Acceptable significance levels are $p<0.05$ and $p<0.01$, respectively.

3. Results

The patients were distributed according to age, sex, ward, cause of hospitalization and if any, type of hepatitis.

Age and sex: the patients were distributed into four categories Table of ages 1: younger than 20, 21 to 40, 41 to 60, and older than 61 years.

Table 1. The study population's age and sex distribution

Age range (in years)	Male No.	%	Female No.	%	No. Total (%)
≤20	37	13.80%	21	15.90%	58 (14.5%)
21- 40	78	29.10%	33	25.00%	111(27.75)
41-60	67	25.00%	42	31.81%	109 (27.25%)
≥61	86	32.08%	36	27.27%	122(30.5%)
Total	268	100%	132	100%	400(100%)

$X^2(df=3, N=400)=2.988, p>0.05$

The cause of hospitalization: the patients were distributed according to their chief complain into cardiac problems, blood pressure, road traffic accident, strokes, metabolic syndrome, nephritic syndrome and Munchausen syndrome Table 2.

Table 2. The common causes for hospitalization

Chief complain	Mean age ±SD	Female	%	Male	%
Ischemic heart disease	56±18	33	25%	61	22.76%
Hypertension	62±15	27	20.45%	43	16.04%
Road traffic accident	34±12	9	6.81%	50	18.65%
stroke	59±17	3	2.27%	33	12.31%
Metabolic syndrome	52±19	22	16.66%	31	11.56%
Nephritic syndrome	39±17	27	20.45%	49	18.28%
Munchausen syndrome	31±10	11	8.33%	1	0.37%
Total	55±15.5	132	100%	268	100%

X^2 $(df=6, N=400)=-2.002$, $p<0.05$

The fact the common cause of hospitalization is a key factor in contracting such infections, distribution the tested population according to the hospital ward they attending is reasonable choice for better understanding of the possible route for infections within health care facilities. As show in Table 3.

Table 3. Distribution of patients according to the ward and their testing results (sex in brackets)

The hospital ward	No. patients	HBV (+ve)	%	HCV (+ve)	%
Emergency ward	120	2 (M)	1.66%	0	0%
Surgical ward	53	0	0%	1 (M)	1.88%
Intensive care unit	49	3 (M)	6.12%	0	0%
Coronary care unit	38	0	0%	0	0%
Burn unit	9	0	0%	0	0%
Maternity ward	4	0	0%	0	0%
Hemodialysis ward	127	12(M=8, F=4)	9.45 %	4 (F=3, M=1)	3.15%
Total	400	17	4.25 %	5	1.25%

Of the total 400 patients 17 showed a positive results for HBV and only 5 patients were positive for HCV, with the majority of the positive results belong to patients on hemodialysis. The hemodialysis period positively connected with ($r = 0.73$, $p < 0.01$) increased risk for contracting hepatitis Figure 1.

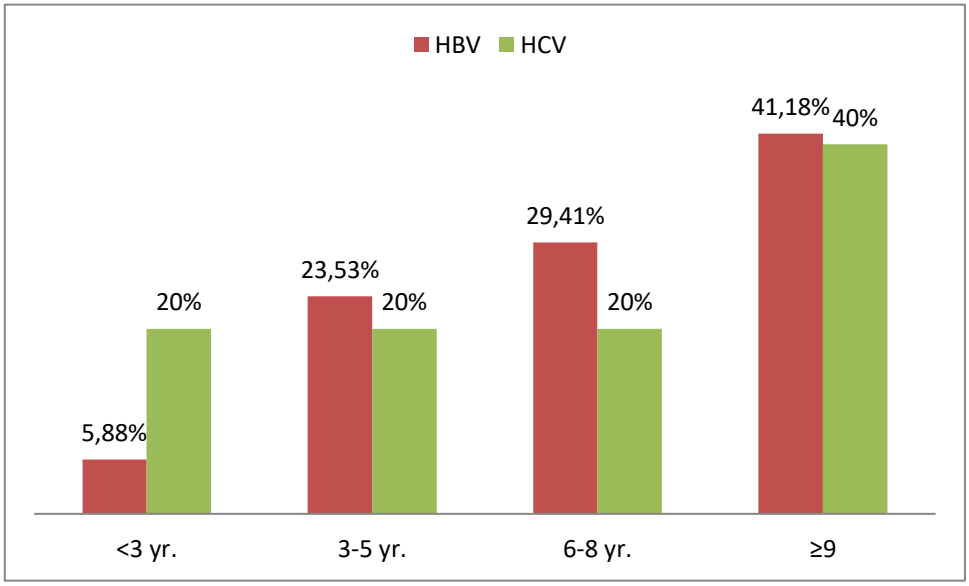

Figure 1. Correlation between the prevalence % and the period of dialysis in years

These results showed a highly significant increased risk of contracting hepatitis in during the dialysis.

Also the majority of the positive results other than the dialysis patients were seen in Male patients between the age of 25 and 45 as illustrate with Figure 2.

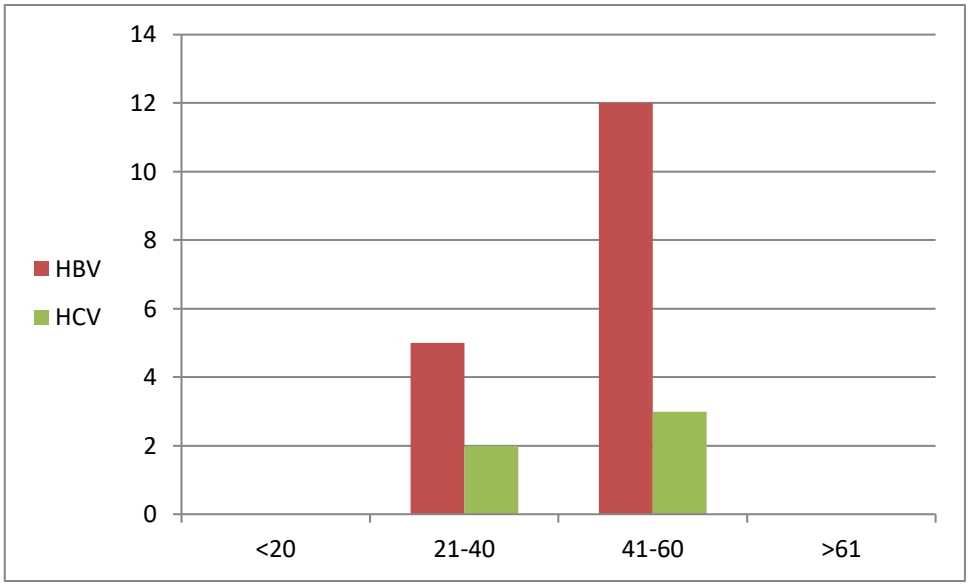

Figure 2. Comparison between hepatitis patients according to their age

4. Discussion

The current research findings are a priceless asset to the global pool of evidence on the prevalence of chronic HBV and HCV among hospitalized patients [12]. Some of the conclusions of an evaluative investigation with a focus on the four elements investigated in this study are: Chronic HBV incidence of 25% and 1. The prevalence of 25% chronic HCV is in concord with data from other parts of the world and reveals a highly important work of raising the community health concern [13]. These high rates might be attributed to the following reasons. There is the possibility of Nosocomial transmission, the spread of infection from one patient to another in health facilities. It could be due to lack of adherence in some procedures for instance correct sterilization of equipment, or failure to adhere strictly to blood borne pathogen procedures [14, 15]. However, some of the patients and or the health care providers may not be fully aware of effective ways of transmission of the hepatitis hence exposing themselves [16, 17].

New evidence must be found to seek the relationship between the duration of dialysis and the susceptibility to chronic hepatitis infection observed [18]. Repeated invasive procedures are another issue in the patients on dialysis, which makes them more susceptible to bloodborne pathogens [19]. Realising this association may allow for intervention which addressed these factor s[20]. In addition to the patients, the humane cost of chronic disease of HBV and HCV is equally high. These infections put a lot of demands on the financial capacity of the health care facility since, treatment is costly and after care is often lengthy. In addition, they cause increased risk of cirrhosis and hepatocellular carcinoma in the patient [21, 22].

This research shows that more effort should be devoted to this area of study in order to can come up with a comprehensive intervention strategy. Measures as rigorous isolation and the application of infection control measures in the administration of different types of treatment, combined with efforts aimed at raising awareness among the healthcare workers and patients, are some of the steps [23]. The screening and testing programs should be made wider, with more attention paid to such population groups as dialysis patients, which enables early diagnosis and treatment.

Last, but not the least, equal emphasis must be placed on providing the necessary treatment to the people infected with the disease so that morbidity and mortality rate decreases [24]. In conclusion, the present investigation adds new information about the extent of chronic HBV and HCV in hospitalized patients in Thi-Qar province, a fact that re-

quires the attention of the health authorities. The chance of contracting the abovementioned viruses could be minimised if the healthcare institutions grasp the mentioned risk factors, and apply a range of preventive measures in order to prevent their transmission. There are still voids that need to be filled in terms of determining variables that may predispose patients to acquiring infection within the hospital and to assess the impact of the prevention and control measures [25].

5. Conclusion

Hepatitis remains a significant concern for hospitalized patients, requiring ongoing attention and proactive measures from healthcare facilities. The prevalence of hepatitis in these settings can be influenced by various factors, but with proper preventive strategies and awareness, its impact can be reduced. Vaccination, screening, infection control, safe injection practices, and protecting healthcare workers are essential steps in curbing the spread of hepatitis within healthcare facilities, ultimately safe guarding patient health and well-being.

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