Prevalence and Epidemiological Study of Hepatitis B and C Patients Admitted to BEN AMOR DJILANI Hospital in El Oued, Algeria

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ABSTRACT

The Goal of the present study was to evaluate the epidemiological variations of hepatitis B and C in El Oued population. Our epidemiological study was carried out on 1798 hepatitis patients admitted to hospital BEN AMOR DJILANI the period (January 2013 to December 2020) in El Oued region. In Results, 5.45% of patients were aged less than 20 years 72.14% of the patients are aged between 20-40 years, the results also show that 15.85% of patients are between 40-60 years old, and 6.56% of patients over the age of 60 years. On the other hand, we found that the proportion of men among those infected with hepatitis was close to 57.30%, while the proportion of women was more than 42.70%. In this study, there were more people with hepatitis B than type C by 95% and 5%, respectively. Concerning regions of hepatitis patients, the eastern region include the highest number with 37%, followed by - with a small difference - the central region with 33%, then come the southern region with 18%, the northern region contain 11% and at least the western region which include the lowest number of hepatitis patients with 1%, of total cases of hepatitis patients in the state of El Oued. Accordingly, the importance of such epidemiological studies is important to improve the effectiveness of treatment measures to control the disease and thus help reduce the adverse effects of this disease on society.

Keywords: Hepatitis B, Hepatitis C, Liver, Epidemiology, El-Oued

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INTRODUCTION

The notion of viral disease dates back to the end of the nineteenth century, with the identification of diseases transmissible by ultra-filterable and invisible agents in electron microscopy. Viruses, initially defined by their size, are found in all animal species, in plants (including algae and fungi), in bacteria (bacteriophages)¹. Between the years 1940-1955, Five hepatotropic viruses were discovered as the main causes of viral hepatitis in

the world: hepatitis A virus, hepatitis B virus (HBV), hepatitis C virus (HCV), hepatitis delta virus and hepatitis E virus². It appears that more than 185 million people around the world suffer from hepatitis virus infection (C). With fundamental differences between different regions, where, for example, we find the spread of this virus by more than 3.5% in North African and Middle Eastern countries. Also, infection with the virus has several causes. One of

the most important risk factors remains infection with the virus from another person, infection with HIV, or liver infections caused by drinking alcohol³. Hepatitis C causes a global health problem, as it is the cause of the death of approximately 1.2 million people annually globally, and this is due to the lack of vaccination to this day and the lack of treatments, as we mention some treatments based on direct antiviral agents (DAAs)⁴. The decline in the prevalence of HBV infection may at least in part be related to expanded vaccination, suggested by the largest decline observed in Southeast Asian children⁵. With regard to the methods of virus transmission, there are sexual relations and drug abuse among the main factors for the transmission of this virus between humans⁶, and for this reason, appropriate vaccinations must be carried out in case of exposure to these causes, especially in areas where this virus is spread.⁷ Lifestyle plays an important role in the etiology of disease, including diet⁸. The virus can cause infection outside the body to another person, and this is by remaining active for 7 days. As for the incubation period for the virus inside the body, it ranges from 30 to 180 days, with a rate of approximately 75 days⁹. One of the most important pathological factors in the body is oxidative stress, which results from an imbalance between the production of free radicals and antioxidants^{10, 11}. Oxidative stress may affect extra-cellular matrix remodeling, mitochondrial respiration, cell proliferation¹² or hepatitis progressive complication¹³. This article was about an

epidemiological study of the distribution of hepatitis B and C patients admitted to BEN AMOR DJILANI hospital from 2013 to 2020 in the state of El Oued.

MATERIELS AND METHODS

The records of all patients diagnosed with hepatitis B and C in El Oued State from 2013 to 2020 were collected from Infectious Diseases service of BEN AMOR DJILANI hospital and information such as the patient's name, age, sex, type of hepatitis and living address was compiled to get the percentage distribution and graphs were drawn for the individual data.

RESULTS AND DISCUSSIONS

The objective of this study is to find out the distribution of hepatitis patients admitted to BEN AMOR DJILANI hospital from 2013 to 2020 in El-Oued. The statistical data can help in the effective prediction of the future trends of hepatitis in El Oued which will help in improving the various treatment options and facilities available for hepatitis patients. A total of 1798 cases of hepatitis patients were analyzed. Based on data collected between 2013-2020 from Infectious Diseases service of BEN AMOR DJILANI hospital, it's were found that man's accounted for 57.29% of the hepatitis population and women's accounted for 42.71%. In this study, hepatitis occurs to be most commonly affecting the males when compared to the females (Fig 1 and Fig 2).

Fig 1: Distribution of the hepatitis patients among men's and women's

Fig 2: Distribution of the hepatitis patients among women's and men's by years

This result is in concurrence with a study conducted by Tsay et al.¹⁴ which found that the prevalence of serum HBV surface antigen (HBsAg) has been reported higher in men than in women. A similar study conducted by Farza et al.¹⁵ and Breidbart et al.¹⁶ found that female HBV carriers have lower viral loads than male carriers. according to Baruch S et al.¹⁷, Females are more likely than males to produce anti-HBs in response to infection. About distribution

of hepatitis patients according to the age, it was found that there were low hepatitis patients (5%) between the age groups 0-20 years of age, 4% of the people between ages 50-55 and 3% of the people between ages 55-60. but the highest hepatitis patients were 18% of the people between 20-25 years and 27% of the people between ages 25-30 years in El Oued population (Fig 3 and Fig 4).

Figure 3: Distribution of hepatitis patients according to the age groups in El Oued Region

Fig 4: Distribution of the hospital hepatitis patients according to the age group in each year

The age group the more infected is between 25-30 years followed by the age group 20-25 and then the ages between 30-35. This result is inconsistent with the epidemiological study of B hepatitis at CHU Constantine on the period 2008-2015 by Kolou et al.¹⁸ which found that the age group the more infected is between 30-44 years. It is interesting to note from our results, that the rate of HBV infection in children is low compared to that of adults which is high, this low proportion can be explained by the rarity of maternofetal transmission and very low exposure to other modes of transmission at this age¹⁹.

Concerning the distribution of hepatitis patients according to the hepatitis type, the most common

type of hepatitis in this study was found to hepatitis B type with a distribution of 95% when compared to hepatitis C with 5% (Fig 5 and Fig 6). Our results do not differ from the distribution of cases in the world, as the number of chronic infection with hepatitis B virus is estimated at about 400 million worldwide (about 5% of the world population), while hepatitis C virus infection does not exceed 170 million individuals worldwide²⁰. Through previous research, type C virus is more deadly to type B liver, as it has been proven that genotype C is the most prominent genotype associated with more serious liver diseases (cirrhosis). Production of a large amount of hepatitis B surface antigen molecules that lack DNA that have the potential to integrate into the host genome²¹.

Fig 5: Total distribution and according to the sex of hepatitis patients in each type of hepatitis

Fig 6: Distribution of hepatitis patients according to the hepatitis type

The results about distribution of hepatitis patients by regions of the state of El Oued, it was found also in this study that 31,15% of the hepatitis patients are from the central region of the state of El Oued. It was found also that 10,62% of the patients are from the North region, 16,91% of the patients are from South region, 35,26% of the patients are from East region and 1,44% of the patients are from West region of El Oued area (Fig 7). The central region is known for its large population density and it consists of the

Daira of El Oued²². the northern region consists of the Dairas of El M'ghair, Geumar, Reugiba and Djamaa, it is known as a large population density. The southern region has a medium population density and include the Dairas of Robbah and Bayada. The eastern region is known to have a large population density, including the Dairas of Taleb Larbi, Debila, Hassi Khalifa and Magrane. The western region is dominated by the deserts and consists of the Daira of Mih ounsa (Fig 8).

Fig 7: Distribution of hepatitis patients by regions of the state of El Oued

Fig 8: Distribution of hepatitis patients in the different Dairas in each region

Through the results, it appeared that the eastern region is the highest in the proportion of patients with viral hepatitis, then the central region, which includes the valley city, followed by the southern region that includes Bayada and Robbah, and finally the north and western region.

CONCLUSION

This study examines the distribution of hepatitis B and C patients admitted to BEN AMOR DJILANI hospitals in El Oued in order to improve the effectiveness of treatment measures to control the disease and thus help reduce the adverse effects of this disease on society.

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CONFLICT OF INTEREST

There are no conflicts of interests.

AUTHORS' CONTRIBUTIONS

The conception of the study, drafting the article and interpretation of data was done by the SM; the other authors CM and HN were responsible for the acquisition of data and analysis.

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