Govaresh/ Vol. 24, No.4, Winter 2020; 241-246.

Brief Report

Evaluation of Hospital Admissions Due to Liver Diseases in Abadan and Khorramshahr Hospitals

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ABSTRACT

Background:
Liver diseases have a lot of pain and suffering for the patients and also cost a lot to cure. In this study, we tried to collect comprehensive and applied information about the incidence of these diseases in Abadan and Khorramshahr cities and provide it to the ministry of health and public opinion.

Materials and Methods:
Referring to the medical records department of Ayatollah Taleghani and Shahid Beheshti Hospitals in Abadan city and Valiasr Hospital in Khorramshahr city, information about patients with liver diseases from 2012 to 2017 were collected from the Hospital Information System (HIS) of the hospitals. The findings were analyzed using SPSS software.

Results:
In our study 62.1% of the patients were male and 37.9% were female. The highest frequency of liver diseases was in the age group of 35-44 years. The lowest incidence was in the age group of less than 1 year and 1-4 years. The most common causes were cirrhosis (319 cases), inflammatory liver disease (121 cases), other specified liver diseases (133 cases), liver failure (71 cases), secondary malignant neoplasm (52 cases), hepatitis C (53 cases), hepatitis B (25 cases), and Fatty liver (20 cases).

Conclusion:
According to the results of this study, it was observed that the prevalence of liver diseases, especially liver cirrhosis, was the highest. As a result, people need to modify their lifestyle and consider weight loss, low-fat diet, and increased physical activity to reduce their body mass index.

Keywords: Liver diseases, Prevalence, Abadan, Khorramshahr, Cirrhosis

please cite this paper as:
Balizadeh Karami AR, Mard SA, Mobarak S, Zahedi A, Asadi M, Radmanesh E. Evaluation of Hospital Admissions Due to Liver Diseases in Abadan and Khorramshahr Hospitals. *Govaresh* 2020;24:241-246.

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Received: 01 Jun.2019
Edited: 01 Oct 2019
Accepted: 02 Oct 2019

INTRODUCTION

Liver diseases have a lot of pain and suffering for the affected patients and also cost a lot to cure. These diseases will bring many disabilities to those who are affected (1). The liver damage is one in 600 to 3500 admissions in hospitals (2). Liver cirrhosis is the eighth cause of death in the United States and the 13th in the world (3). The prevalence of cirrhosis in the world has been estimated at 4.5-9.5% (4). Hepatocellular carcinoma (HCC), nonalcoholic fatty liver disease (NAFLD), liver failure, hepatitis B and hepatitis C are the most common causes of liver diseases in most societies (5-11).

Abadan and Khorramshahr (two cities of Khuzestan province in southwestern Iran) are located in a hot climate

Table 1: The number and percentage of liver diseases in male and female patients

Variable		Frequency	Valid Percent
Sex	Female	314	37.9
	Male	514	62.1
	Total	828	100.0

and are subject to pollution caused by environmental microorganisms each year. Considering that the prevalence of overweight and obesity in Abadan is higher than the national average (12) and studies have shown that obesity is positively associated with the severity of cirrhosis and fibrosis in patients with liver diseases (13) and since the report on the prevalence of liver diseases in Abadan and Khorramshahr has not yet been provided, in this study we aimed to collect comprehensive and applied information on the incidence of hepatotoxic diseases in Abadan and Khorramshahr to provide to public opinion.

MATERIALS AND METHODS

Referring to the medical records department of Ayatollah Taleghani and Shahid Beheshti Hospitals in Abadan and Valiasr Hospital in Khorramshahr city, information about patients with liver diseases from 2012 to 2017 was collected from the Hospital Information System (HIS) of the hospitals. The research subjects included patients with hepatic diseases registered in the HIS. After receiving the information from HIS, they were arranged based on the patients' names, fathers' names, age, sex, date of admission, type of disease, and ordered disease codes.

The findings were analyzed using SPSS software and descriptive statistics (frequency and percentage, Chi-square test (χ^2 test) were used to examine the frequency of the cases according to age and sex.

RESULTS

62% of patients were male and 37.9% were female (table 1). The highest frequency was in the age group of 35-44 years old. The lowest incidence was in the age group of less than 1 year and 1-4 years. The most common causes were cirrhosis (319 cases), other specified liver diseases (133 cases), inflammatory liver diseases (121 cases), liver failure (79 cases), secondary malignant neoplasm (52 cases), hepatitis C (53 cases), hepatitis B (25 cases), and fatty liver disease (20 cases) (table 2).

Table 2: Number and percentage of all types of liver diseases

Diagnosis				
Variables	Frequency	Percent	Valid Percent	Cumulative Percent
Hepatitis B	25	3.0	3.0	3.0
Hepatitis C	53	6.4	6.4	9.4
Fatty liver	20	2.4	2.4	11.8
Hepatic failure	79	9.5	9.5	21.4
Hepatic fibrosis	9	1.1	1.1	22.5
Hepatitis A	17	2.1	2.1	24.5
Inflammatory liver disease	121	14.6	14.6	39.1
Cirrhosis	319	38.5	38.5	77.7
Other specified diseases of liver	133	16.1	16.1	93.7
Secondary malignant neoplasm of liver	52	6.3	6.3	100.0
Total	828	100.0	100.0	

The incidence of cirrhosis in women was 41.4% and in men was 58.6% (table 3). Of 319 cases of cirrhosis, 86 cases (27%) were in the age group of 35-44 years old, 59 cases (18.5%) were in group of 45- 54 years old, 45 cases (14.1%) were in age group of 65-74, 44 cases (13.8 %) were in the age of 55-64 years, 34 cases (10.7%) were in age group of 25-34 years old, 26 cases (8.2%) were over 75 years old, 22 cases (6.95) were in the age group of 24-15 years, 2 cases (0.6%) were 5-14 years old, and 1 case (0.3%) in 1-4 years old (table 4).

The incidence of secondary malignant neoplasm in women was 46.2% and in men was 58.8% (table 3). 15 cases of secondary malignant neoplasm of the liver (28.8%) were in the age group of 35-44 years old, 15 cases (28.8%) in the age group of 45-54 years old, seven cases (13.5%) were in the age group of 55-64 years old, seven cases were (13.5%) in the age group of 25-34 years old, three cases (5.8%) were in each age groups of 15-24 and 65-74 years old, two cases were (3.8%) in the age group of 5-14 years old (table 4).

The incidence of hepatitis B in women was 48% and in men was 52% (table 3). The most frequent cases of hepatitis B were in the age group of 65-74 years old with 32.0% (8 cases) followed by the age group of 55-64 years old with 20.0% (5 cases). For the

Table 3: Number and percentage of different types of liver diseases in men and women

Diagnosis* gender Crosstabulation					
Variables			Sex		Total
			female	male	
Diagnosis	Hepatitis B	Count	12	13	25
		% within diagnosis	48.0%	52.0%	100.0%
	Hepatitis C	Count	9	44	53
		% within diagnosis	17.0%	83.0%	100.0%
	Fatty liver	Count	13	7	20
		% within diagnosis	65.0%	35.0%	100.0%
	Hepatic failure	Count	32	47	79
		% within diagnosis	40.5%	59.5%	100.0%
	Hepatic fibrosis	Count	4	5	9
		% within diagnosis	44.4%	55.6%	100.0%
	Hepatitis A	Count	2	15	17
		% within diagnosis	11.8%	88.2%	100.0%
	Inflammatory liver disease	Count	54	67	121
		% within diagnosis	44.6%	55.4%	100.0%
	Cirrhosis	Count	132	187	319
		% within diagnosis	41.4%	58.6%	100.0%
	Other specified diseases of liver	Count	32	101	133
		% within diagnosis	24.1%	75.9%	100.0%
	Secondary malignant neoplasm of liver	Count	24	28	52
		% within diagnosis	46.2%	53.8%	100.0%
Total		Count	314	514	828
		% within diagnosis	37.9%	62.1%	100.0%

age group of one year old, 1-4 years old, 5-14 years old, and 15-24 years old no item was found. There were four cases of hepatitis B in the age group of 25-34 years old, five cases in the age group of 45-54 years old, and three cases in the age group of 35-44 years old. Hepatitis B was recorded for 25 cases during these years in Abadan and Khorramshahr hospitals (table 4).

The incidence of hepatitis C in women was 17.0% and in men was 83.0% (table 3). The highest number of hepatitis C was recorded for patients aged 45-54 years (34.0% or 18 cases) and for patients aged 55-64 years, 11 cases (20.8%) were reported. In 65-74 years old patients, eight cases (15.1%), 35- 44 years old patients, eight cases (15.1%), 15-24 years old patients, two cases (3.8%), and 5-14 years older and more than 75 years old patients one case (1.9%) were reported (table 4).

The incidence of fatty liver disease in women was 65% and in men was 35% (table 3). Five cases of fatty liver disease occurred in each age group of 65-74 and 55-64 years old (25%). Four patients (20%) were in the age group of 45-54 years old and three patients (15%) aged between 25-34 years. Two cases (10%) were in the age group of 35-44 years old and one patient (5%) aged between 15-24 years (table 4).

The incidence of hepatic failure in women was 40.5% and in men was 59.5% (table 3). In hepatic failure, 19 cases (24.1%) were in the age group of 35-44 years old, 12 cases (15.2%) in the age group of 65-74 years old, 13 cases (16.5%) in the age group of 55-64 years old, and 10 cases (12.7%) in the age group of 45-54 years. Five patients (6.3%) aged more than 75 years, 7 patients (8.9%) aged 25-34 years, six patients (7.6%) aged 15-24 years, and six patients aged 5-14 years (table 4).

The incidence of hepatic fibrosis in women was

Table 4: Number and percentage of different types of liver diseases in different age groups

Variables		Age group										Total
		<1	>75	1-4	15-24	25-34	35-44	45-54	5-14	55-64	65-74	
Hepatitis B	Count	0	0	0	0	4	3	5	0	5	8	25
	%	0.0%	0.0%	0.0%	0.0%	16.0%	12.0%	20.0%	0.0%	20.0%	32.0%	100.0%
Hepatitis C	Count	0	1	0	2	4	8	18	1	11	8	53
	%	0.0%	1.9%	0.0%	3.8%	7.5%	15.1%	34.0%	1.9%	20.8%	15.1%	100.0%
Fatty liver	Count	0	0	0	1	3	2	4	0	5	5	20
	%	0.0%	0.0%	0.0%	5.0%	15.0%	10.0%	20.0%	0.0%	25.0%	25.0%	100.0%
Hepatic failure	Count	1	5	0	6	7	19	10	6	13	12	79
	%	1.3%	6.3%	0.0%	7.6%	8.9%	24.1%	12.7%	7.6%	16.5%	15.2%	100.0%
Hepatic fibrosis	Count	0	1	0	0	2	3	0	0	2	1	9
	%	0.0%	11.1%	0.0%	0.0%	22.2%	33.3%	0.0%	0.0%	22.2%	11.1%	100.0%
Hepatitis A	Count	0	12	0	0	1	0	0	0	2	2	17
	%	0.0%	70.6%	0.0%	0.0%	5.9%	0.0%	0.0%	0.0%	11.8%	11.8%	100.0%
Inflammatory liver disease	Count	5	9	6	19	10	9	11	24	11	17	121
	%	4.1%	7.4%	5.0%	15.7%	8.3%	7.4%	9.1%	19.8%	9.1%	14.0%	100.0%
Cirrhosis	Count	0	26	1	22	34	86	59	2	44	45	319
	%	0.0%	8.2%	0.3%	6.9%	10.7%	27.0%	18.5%	0.6%	13.8%	14.1%	100.0%
Other diseases of liver	Count	0	4	0	5	58	34	12	2	12	6	133
	%	0.0%	3.0%	0.0%	3.8%	43.6%	25.6%	9.0%	1.5%	9.0%	4.5%	100.0%
Secondary malignant neoplasm of liver	Count	0	0	0	3	7	15	15	2	7	3	52
	%	0.0%	0.0%	0.0%	5.8%	13.5%	28.8%	28.8%	3.8%	13.5%	5.8%	100.0%
Total	Count	6	58	7	58	130	179	134	37	112	107	828
	%	0.7%	7.0%	0.8%	7.0%	15.7%	21.6%	16.2%	4.5%	13.5%	12.9%	100.0%

44.4% and in men was 55.6% (table 3). Three patients (33.3%) with hepatic fibrosis aged 35-44 years, two patients (22.2%) were in each age group of 55-64 years and 25-34 years old, one case (11.1%) was in the age groups of over 75 years and 65-74 years old (table 4).

The incidence of hepatitis A in women was 11.8% and in men was 88.2% (table 3). Hepatitis A was reported in 12 patients aged (70.6%) over 75 years, and two patients (11.8%) in each age group of 65-74 years and 55-64 years old, and one patient (5.9%) in the age group of 25-34 years old (table 4).

The incidence of inflammatory liver disease in women was 44.6% and in men was 55.4% (table 3). In the inflammatory liver disease, 24 patients (19.8%) aged 5-14 years, 19 cases (15.7%) aged 15-24 years, 17 patients (14%) aged 65-74 years, and eleven patients (9.1%) were in each age group of 45-54 and 55-64 years old. 10 patients (8.3%) aged 25-34 years and nine patients (7.4%) in each age group of over 75 and 35-44 years old. Six patients aged (5%) 1-4 years, and five patients (4.1%) aged less than one year (table 4).

DISCUSSION

In our study 62.1% of patients were male and 37.9% were female. The highest frequency of liver diseases was in the age group of 35-44 years old. The lowest incidence was in the age group of less than 1 year and 1-4 years. The most common causes were cirrhosis (319 cases), inflammatory liver disease (121 cases), other specified liver diseases (133 cases), liver failure (71 cases), secondary malignant neoplasm (52 cases), hepatitis C (53 cases), hepatitis B (25 cases), and fatty liver (20 cases).

The findings of two large studies conducted in Europe in 2007 and 2011 show that between 43% and

70% of people with type 2 diabetes also had NAFLD (14,15). Another research conducted in Romania in 2008 showed that the outbreak of NAFLD in the country was close to 20% (16).

In our study in Abadan and Khorramshar hospitals, cases of fatty liver in the age group of 64-65 and 65-74 years were found to be 25%, and in the group less than 15 years old, no case was observed. And the prevalence of this disease in the 15-24-year-old group was 5%. The incidence of fatty liver in women was 65% and in men was 35%.

A study that has been conducted by the University of Illinois in Chicago, USA, showed that the risk of cirrhosis and decompensated liver diseases were 2-3 times higher in patients with HCV infection who had significant alcohol consumption (i.e. more than 60 g in men and more than 40 g in women) than those who did not consume significant amounts of alcohol. In addition, there was a higher rate of cirrhosis infection in these people (17).

In our study, the cases of hepatitis C in the age group of 45-54 years were 34.0% and in the group less than 4 years old was zero percent. The incidence of hepatitis C in women was 13.7% and in men was 86.3% Of 319 cases of cirrhosis, the most cases of cirrhosis were in the age group of 35-44 years (27%) and the lowest were in the age group of 1-4 years (0.3%) and in the group less than one year, no cases were observed. The incidence of cirrhosis in women was 41.4% and in men was 58.6%.

The main causes of cirrhosis are alcoholism, hepatitis B and C viruses, and non-alcoholic steatohepatitis (NASH) (3). Liver cirrhosis killed more than 1 million people worldwide in 2010, accounting for nearly 2% of all deaths in that year (18).

The results of one study showed that the supervision of patients reduces the risk of death from HCC up to 37% (19).

In the present study, most cases of hepatitis B were in the age group of 65-74 years (32%) and no cases in the group less than 24 years old. The incidence of hepatitis B in women was 48% and in men was 52%.

Hepatitis B virus (HBV) infection, with 2 billion people infected worldwide is a serious global health problem and results in 500,000 to 1.2 million deaths per year due to chronic hepatitis, cirrhosis, and hepatocellular carcinoma (11).

As liver diseases play a very important role in reducing life expectancy and increased risk of death, in this study we tried to collect comprehensive and applied information about the incidence of these diseases in Abadan and Khorramshahr cities and deliver it to the Ministry of Health and public opinion. According to the results of this study, it was observed that the prevalence of liver diseases, especially liver cirrhosis, is high. As a result, people need to modify their lifestyle, consider weight loss, use a low-fat diet, and increase physical activity to reduce their body mass index.

CONFLICT OF INTEREST

None of the authors declare any conflict of interest.

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