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Research Article

**RATE OF OCCURRENCE OF INCIDENTAL FATTY LIVER  
AND ITS RELATIONSHIP WITH THE HYPERTENSION AND  
DIABETES**<sup>1</sup>Dr Zia Ul Mustafa, <sup>2</sup>Muhammad Aleem Uddin, <sup>3</sup>Dr Muhammad Ali<sup>1</sup>Assistant Professor of Medicine Sahara Medical College Narowal; <sup>2</sup>Assistant Professor of Medicine Sahara Medical College Narowal; <sup>3</sup>Senior Registrar Fatima Memorial Hospital Shadman Lahore**Article Received:** June 2019**Accepted:** July 2019**Published:** August 2019**Abstract:**

**Objective:** The aim of this research work is to observe the rate of occurrence of Incidental fatty liver on the ultrasound and its relationship with the hypertension & diabetes.

**Methodology:** This transverse research work carried out from March 2014 to September 2015 in the radiology departments of the Sughra Shafti Medical Complex Narowal. Non-purposive convenience sampling technique was in use for the selection of the patients from both sex and from every age. Seriously ill patients of trauma and all the patients present with past history of the chronic diseases of liver, addict of alcohol & with pregnancy were not the part of this research work. We recorded the blood sugar & BP at different times.

**Results:** Total 400 patients were the part of this research work with an average age of  $42.63 \pm 16.78$  years. 38% patients were present with incidental outcome of fatty liver with the utilization of ultrasound. In the patients of fatty liver, 46.78% patients were males and 49.28% patients were females. The diagnosis showed that patients were the victims of hypertension, among them 55.42% patients were present with fatty liver. The diabetes was present in the patients among them were 65.78% patients were present with fatty liver.

**Conclusion:** Mostly, fatty liver is the incidental outcome on the ultrasound. We found a clear association of this issue of fatty liver with the hypertension & diabetes.

**Key Words:** Radiology, fatty liver, incidental, outcome, diabetes, convenience, sampling, occurrence, methodology, pregnancy.

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### INTRODUCTION:

The disease of the fatty liver is very quickly becoming the very frequent disease of liver in whole world. The occurrence of this complication in the normal public of various countries of Europe is from 18.0% to 28.0% [1]. The disease of fatty liver is very broad term that ranges from steatosis to the non-alcoholic steatohepatitis [2]. This complication resulted into cirrhosis of liver & carcinoma [3]. There are many factors for the development of this disease like eating habits & sedentary style of life [4]. This complication is very common incidental outcome of the ultrasound conducted of abdomen cavity for other diseases. The best method to discover the fatty liver is the ultrasonography. The comparison of the liver's echogenicity with the renal cortex carried out by ultrasound [5]. The infiltration of the fatty liver can or cannot happen with the hepatomegaly [6]. The disease of the fatty liver has no association with the hepatic disorders as metabolic syndrome, Type-2 Diabetes & hypertension [7].

Essential hypertension is resistant condition for insulin [8] and about 48.0% patients suffering from arterial hypertension are present with resistant to insulin with the hyperinsulinemia [9] and the danger for the development of essential hypertension rises with the availability of the disease of the fatty acid. Fatty liver can lead to many other complications as hypertension, diabetes and heart diseases [10]. The very common cause of high rate of mortality among the patients of this disease is cardio-vascular diseases [11].

### METHODOLOGY:

This transverse research work was carried out at radiology departments of the Sughra Shafi Medical Complex Narowal from March 2014 to September 2015. Total 400 patients who appeared in surgical OPD were the part of this research work. We also took the consent of all patients. We included the patients from both sex & age groups. Seriously ill, patients of trauma & patients with previous history of chronic diseases of liver, alcohol addict, viral infections & with pregnancy were not the part of this research work.

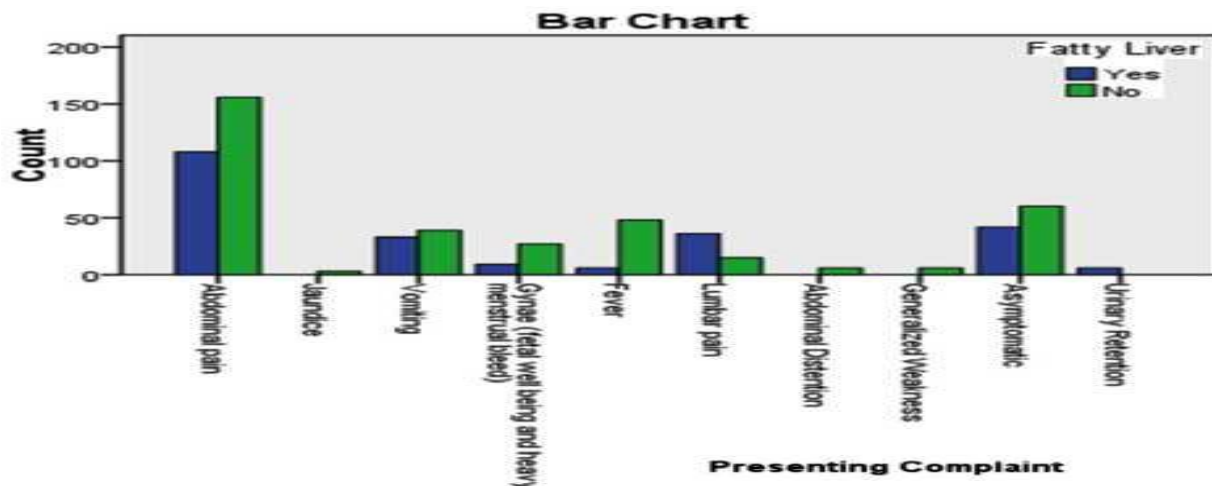


Figure 1: Presenting Complaints in Fatty Liver patients

We measured the fasting glucose level to calculate the presence and severity of the diabetes mellitus and we also measured the BP to know about the prevalence of the hypertension. We conducted ultrasound of the screened patients to identify the fatty liver. The determination of the normal liver's echogenicity carried out by the comparison of the liver echogenicity to the cortex of kidneys. We collected all the data on a Performa. SPSS V.16 was in use for the analysis of the collected information. We analyzed the patients for age, sex, fatty liver outcome, HTN & DM. Calculations of average values carried out for

categorical variables. The presentation of the qualitative variables carried out with percentages.

### RESULTS:

Total 400 patients were the part of this research work with an average age of  $42.63 \pm 16.78$  years (Table-1). 46.0% patients were males and 49.28% patients were females. We discovered patients with fatty liver in which 46.78% were male and 49.28% patients were females. Total 60.48% patients with fatty liver were present with more than 40 year of age.

Categories		Fatty Liver		Total
		Yes	No	
Age Categories	1 - 20 years	7	61	68
		3.80%	15.50%	10.00%
	20 - 40 years	79	100	179
		31.80%	26.30%	28.50%
	40 - 60 years	88	121	209
		35.50%	31.20%	33.50%
	more than 60 years	58	70	128
		23.00%	20.00%	20.00%
Total	Count	232	352	584
	Percent	98.00%	98.50%	100.00%

We discovered patients with hypertension, among them 55.42% patients were present with fatty liver. We diagnosed diabetes in patients, among them 65.78% were present with fatty liver. Total 15.48% patients were present without any complain & pain in abdomen was present in 43.0% patients having fatty liver. 23.0 to 27.88% patients were overweight having body mass index, fatty liver was present in 65.78% patients. (Table-2).

BMI		Units	Fatty Liver		Total
			Yes	No	
BMI Categories	Less than 18.5	Count	7	28	35
		Percent	3.80%	6.30%	4.50%
	18.5 - 24.99	Count	127	223	332
		Percent	51.80%	55.50%	54.00%
	25 - 29.99	Count	82	146	200
		Percent	33.00%	31.30%	32.00%
	More than 30	Count	16	3	19
		Percent	5.50%	0.80%	3.50%
Total	Count	Count	232	400	586
	Fatty Liver (%)	Percent	99.00%	97.00%	100.00%

### DISCUSSION:

This research work determined the rate of occurrence of fatty liver incidentally on the ultrasound as well as its relationship with the HTN & DM. In this research work, rate of occurrence of fatty liver as 38%. The occurrence of this complication was more common in patients with middle age as assessed in this current work that 60.48% patients suffering from fatty liver were having the age greater than forty years. This research work showed same amount of the patients for both sex. Afzal in his research work conducted in Lahore in which he discovered eighty-one patients with fatty liver out of 130 patients of diabetes type-2 [12]. A research work conducted by Lopez-Suaraz stated occurrence of this complication as 38.50% among entire specimen in patients with HTN [13]. Rayo stated clinical relationship between the disease

of the nonalcoholic fatty liver & prevalence of HTN [14]. HTN development has association with the progressive fatty liver in comparison with the elder or normal condition. The prevalence of the HTN increased in accordance to the degree of the NAFLD (normal = 12.38%, mild = 19.78%, moderate-severe = 28.8% [14].

One other research work carried out by Donati in 2003 examined that the patients of HTN discovered a significantly greater incidence of this complication (17 out of 55 patients, 30.90%) as compared to the healthy controls (7 out of 55, 12.70) [15]. Ijaz performed a research work in Multan, Pakistan and stated the occurrence of fatty liver as 51.0% in the patients suffering from diabetes [16]. An important proportion of the patients with diabetes in this research work were

present with fatty liver (67.80%). In this research work, the average age of the patients was  $44.65 \pm 18.80$  years which is very much comparable with the works carried out by Ijaz [16] in 2009 & Luxmi [17] in the year of 2008.

We stated the occurrence of fatty liver as 38.0% which is much comparable with the prevalence in other countries like India, where the rate of occurrence was 47.0% [18]. A high occurrence of fatty liver as 56.48% was also present in the research work conducted by Afzal in 2016. The incidence of 55.0% was also present in the patients living in the regions of Arab Peninsula [19]. In one other research work carried out by Targher in the year of 2007 stated 69.50% incidence of this complication. The prevalence of this complication also increases with the advancement in age [20]. Some research work reported the female gender at high danger to acquire this disease as research works of Akbar & Kawther [19]. Ijaz also stated that 62.750% females with diabetes develop this very complication in comparison to the 37.25% [16]. One research work performed by Williams in 2011 observed that male patients were present with high risk for this clinical issue [21]. Targher in 2005 stated that this complication lead to the cardiovascular diseases particularly in the patients who are suffering from diabetes [22]. Most of the patients of this disease are present with no signs & symptoms [23]. There can be some symptoms in children as pain in abdomen and sometimes full fatigue [24].

### CONCLUSION:

The occurrence of fatty liver is very common, discovered during ultrasound found incidentally. There is strong association between the fatty liver with the hypertension, diabetes, elder age & obesity. So, it is very necessary to assess the persons who are present with incidental outcome of fatty liver during ultrasonography. If the findings of laboratory are not in favor of the ultrasound results, then biopsy of liver is a vital step to diagnose proper hidden truth.

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