

Short Communication

A Preliminary Study to Assess Awareness about Non Alcoholic Fatty Liver Disease (NAFLD) and Hypertension

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Abstract

Non Alcoholic Fatty Liver Disease (NAFLD) is global public health problem. NAFLD is considered to be a risk factor for developing hypertension, cardiovascular diseases along with resulting in cirrhosis of liver if not diagnosed early and treated. Creating awareness among the population including the patients who visit community health centers with problems with liver function. NAFLD is reported to be associated with hypertension. Community health centers play an important role in educating and creating awareness regarding NAFLD among public and patients. The present preliminary study showcases the importance of educating the hypertensive patients about NAFLD.

INTRODUCTION

Non Alcoholic Fatty Liver Disease (NAFLD) is one of the most common disease related to obesity and metabolic syndrome. Rather it is considered as the outcome of insulin resistance in the liver [1-2]. NAFLD is one of the public health problems that affects a sizeable population. It is predicated more people will suffer from not only the liver impairment of NAFLD but also lead to the development of Non Communicable Diseases like diabetes mellitus (DM) and hypertension [1]. This will cause a huge economic burden resulting in health service over expenditure in coming decades [2].

Therefore, creating awareness about NAFLD and its complications in a community will promote and prevent the spread of NAFLD. Community health service is offered through primary health center, community health center and specialized tertiary care. As a community health professional, the present pilot study was undertaken to assess patient's knowledge and create awareness about NAFLD's association with hypertension.

OBJECTIVES

- ❖ To identify the awareness about NAFLD and its management among patients with hypertension.

- ❖ To find out the association between awareness about NAFLD and its management with their selected demographic variables of patients with hypertension.

METHODS

The current study was undertaken during the month of August 2023. 60 patients attending the NCD clinic at the urban primary health Centre, Choolai, who are all available at the time of data collection and who fulfill the inclusion criteria were taken for the study. Informed consent was obtained from the participants after explaining the purpose of the study. Self-structured questionnaires including demographic data and knowledge questionnaire were used to collect data during pretest and post-test. Non-probability convenience sampling technique was used for the present study. After obtaining formal administrative permission and the ethical clearance, a pilot study was conducted.

RESULTS

The study was undertaken with hypertensive patients seen in the community health center, Choolai area, Tamilnadu, India. Convenience sampling technique was

Independent Variable	Nurse-led intervention package includes teaching regarding risk factors related to cardiovascular diseases
Dependent Variable	Lifestyle modification
Inclusion Criteria	<ul style="list-style-type: none"> ✓ who are willing to participate. ✓ who have had the disease for more than 1 year ✓ who is available at the time of data collection ✓ who can speak and read Tamil and English. ✓ both male and female
Exclusion Criteria	<ul style="list-style-type: none"> ✓ who are paramedical professionals ✓ who participated in some other studies ✓ who are having co-morbid illness
Group	NAFLD with hypertension
Place	NCD Clinic at Urban Primary Health Centre, Choolai, Chennai

used to determine the sample size taking informed consent from the participants and approval from Institute's Ethics Review Board (IREB). A validated questionnaire was made use of to measure awareness about NAFLD from the participants.

16% of the participants indicated the doctor mentioned about fatty liver. 6 percent of the participants wrote that excess fat in the liver can cause fatty liver (more than 5 percent fat in the liver). Only 2% are knew that NAFLD can lead to cirrhosis of liver. 4% of the patients aware of alcohol induced fatty liver. 68% told fatty liver can occur in a non-alcoholic cases. 26 percentage of the patients said that fatty liver is not hereditary. Only 10% told there is a treatment for fatty liver. 22% said that Fatty liver is preventable. 10% of the participants heard that cirrhosis liver as shrinkage liver. 70% said that fatty liver can be cured in its early stage. 16% said ultrasonography is one of the tools to diagnose NAFLD [Table 1-5].

DISCUSSION

It is reported that about 40 % of adults reported to have non-alcoholic fatty liver disease (NAFLD) globally. NAFLD is therefore, is a widespread public health and economic problem, and the implications of this disease may be ominous. It is also known that NAFLD can lead to hypertension, diabetes mellitus and other cardiovascular disorders [3-7].

The pilot study indicates that some of these patients knew about the prevalence of NAFLD as one of the major liver diseases. Few knew its progression of NAFLD to cirrhosis of liver if left untreated. Some of the patients knew about alcohol induced fatty liver disease. In general the pilot study indicates the need for creating awareness in the community that NAFLD can lead to hypertension and coronary artery disease if not diagnosed early and treated properly. Further study with a larger population is being planned to be carried out.

Table 1: Demographic Variables.

Demographic variables		Number of patients	%
Age	<20 years	0	0.00%
	20 -40 years	8	16.00%
	41-60 years	32	64.00%
	>60 years	10	20.00%
Sex	Male	25	50.00%
	Female	25	50.00%
Ethnicity	Caucasians	0	0.00%
	Hispanics	0	0.00%
	Asians	50	100.00%
Education	Elementary school	11	22.00%
	High school	31	62.00%
	College	8	16.00%
	Post graduate	0	0.00%

Table 2: Awareness about NAFLD and its management among patients with hypertension.

		Number of patients	%
Has your doctor ever mentioned fatty liver?	Yes	8	16.00%
	No	42	84.00%
Have you ever heard about Cirrhosis (Shrinkage of liver)?	Yes	5	10.00%
	No	45	90.00%
Which of the following do you think can advance to cirrhosis?	Alcohol consumption	41	82.00%
	Hepatitis	2	4.00%
	Fatty liver	2	4.00%
	Others	5	10.00%
Which of this conditions do you think can cause fatty liver	Obesity	19	38.00%
	Diabetes	19	38.00%
	Excess alcohol intake	0	0.00%
	High cholesterol	10	20.00%
	Lack of exercise	2	4.00%
Fatty liver is hereditary	True	37	74.00%
	False	13	26.00%
Is there a treatment for fatty liver	Yes	5	10.00%
	No	31	62.00%
	Dont know	14	28.00%
Fatty liver is preventable	True	19	38.00%
	False	31	62.00%
Do you think that fatty liver can occur in a non-alcoholic	Yes	34	68.00%
	No	9	18.00%
	Dont know	7	14.00%
Do you think that fatty liver can be cured in its early stage	Yes	35	70.00%
	No	9	18.00%
	Dont know	6	12.00%
How do you think doctors diagnose, liver? (one or more	Sonogram of liver	8	16.00%
	Blood test	40	80.00%
	Body weight/ obesity	0	0.00%
	Not sure	2	4.00%
Do you think fat in the liver can cause a serious health problem?	Yes	3	6.00%
	No	45	90.00%
	Dont know	2	4.00%

Table 3: Association between awareness about NAFLD and its management with their Age of patients with hypertension.

		Age				n	Chi square test
		≤60 years		>60 years			
		n	%	n	%		
Has your doctor ever mentioned fatty liver?	Yes	6	75.00%	2	25.00%	8	χ2=0.15 p=0.70(NS)
	No	34	80.95%	8	19.05%	42	
Have you ever heard about Cirrhosis (Shrinkage of liver)?	Yes	4	80.00%	1	20.00%	5	2=0.00 p=1.00(NS)
	No	36	80.00%	9	20.00%	45	
Which of the following do you think can advance to cirrhosis?	Alcohol consumption	34	82.93%	7	17.07%	41	χ2=6.22 p=0.10(NS)
	Hepatitis	2	100.00%	0	0.00%	2	
	Fatty liver	2	100.00%	0	0.00%	2	
	Others	2	40.00%	3	60.00%	5	
Which of this conditions do you think can cause fatty liver	Obesity	15	78.95%	4	21.05%	19	χ2=1.61 p=0.66(NS)
	Diabetes	14	73.68%	5	26.32%	19	
	Excess alcohol intake	0	0.00%	0	0.00%	0	
	High cholesterol	9	90.00%	1	10.00%	10	
	Lack of exercise	2	100.00%	0	0.00%	2	
Fatty liver is hereditary	True	32	86.49%	5	13.51%	37	χ2=3.74 p=0.06(NS)
	False	8	61.54%	5	38.46%	13	
Is there a treatment for fatty liver	Yes	3	60.00%	2	40.00%	5	χ2=2.86 p=0.24(NS)
	No	27	87.10%	4	12.90%	31	
	Dont know	10	71.43%	4	28.57%	14	
Fatty liver is preventable	True	18	94.73%	1	5.27%	19	χ2=4.16 p=0.04(S)
	False	22	70.97%	9	29.03%	31	
Do you think that fatty liver can occur in a non-alcoholic	Yes	28	82.35%	6	17.65%	34	2=1.22 p=0.05(NS)
	No	7	77.78%	2	22.22%	9	
	Dont know	5	71.43%	2	28.57%	7	
Do you think that fatty liver can be cured in its early stage	Yes	31	88.57%	4	11.43%	35	χ2=5.35 p=0.02*(S)
	No	9	60.00%	6	40.00%	15	
	Dont know	0	0.00%	0	0.00%	0	
How do you think doctors diagnose, liver? (one or more)	Sonogram of liver	8	100.00%	0	0.00%	8	χ2=3.12 p=0.21(NS)
	Blood test	30	75.00%	10	25.00%	40	
	Body weight/obesity	0	0.00%	0	0.00%	0	
	Not sure	2	100.00%	0	0.00%	2	
Do you think fat in the liver can cause a serious health problem?	Yes	2	66.67%	1	33.33%	3	2=0.83 p=0.63(NS)
	No	36	80.00%	9	20.00%	45	
	Dont know	2	100.00%	0	0.00%	2	

Table 4: Association between Gender, awareness about NAFLD and its management of patients with hypertension.

		Sex				n	Chi square test
		Male		Female			
		n	%	n	%		
Has your doctor ever mentioned fatty liver?	Yes	4	50.00%	4	50.00%	8	$\chi^2=0.00$ p=1.00(NS)
	No	21	50.00%	21	50.00%	42	
Have you ever heard about Cirrhosis (Shrinkage of liver)?	Yes	2	40.00%	3	60.00%	5	$\chi^2=0.22$ p=0.63(NS)
	No	23	51.11%	22	48.89%	45	
Which of the following do you think can advance to cirrhosis?	Alcohol consumption	18	43.90%	23	56.10%	41	$\chi^2=4.41$ p=0.22(NS)
	Hepatitis	1	50.00%	1	50.00%	2	
	Fatty liver	2	100.00%	0	0.00%	2	
	Others	4	80.00%	1	20.00%	5	
Which of this conditions do you think can cause fatty liver	Obesity	8	42.11%	11	57.89%	19	2=0.93 p=0.82(NS)
	Diabetes	10	52.63%	9	47.37%	19	
	Excess alcohol intake	0	0.00%	0	0.00%	0	
	High cholesterol	6	60.00%	4	40.00%	10	
	Lack of exercise	1	50.00%	1	50.00%	2	
Fatty liver is hereditary	True	16	43.24%	21	56.76%	37	$\chi^2=2.60$ p=0.11(NS)
	False	9	69.23%	4	30.77%	13	
Is there a treatment for fatty liver	Yes	2	40.00%	3	60.00%	5	$\chi^2=0.77$ p=0.68(NS)
	No	17	54.84%	14	45.16%	31	
	Dont know	6	42.86%	8	57.14%	14	

Fatty liver is preventable	True	2	10.52%	17	89.48%	19	$\chi^2=5.53$ p=0.05*(S)
	False	23	74.19%	8	25.81%	31	
Do you think that fatty liver can occur in a non-alcoholic	Yes	17	50.00%	17	50.00%	34	$\chi^2=2.28$ p=0.32(NS)
	No	6	66.67%	3	33.33%	9	
	Dont know	2	28.57%	5	71.43%	7	
Do you think that fatty liver can be cured in its early stage	Yes	17	48.57%	18	51.43%	35	$\chi^2=5.57$ p=0.05*(S)
	No	7	77.78%	2	22.22%	9	
	Dont know	1	16.67%	5	83.33%	6	
How do you think doctors diagnose, liver? (one or more)	Sonogram of liver	3	37.50%	5	62.50%	8	$\chi^2=2.90$ p=0.21(NS)
	Blood test	22	55.00%	18	45.00%	40	
	Body weight/obesity	0	0.00%	0	0.00%	0	
	Not sure	0	0.00%	2	100.00%	2	
Do you think fat in the liver can cause a serious health problem?	Yes	1	33.33%	2	66.67%	3	2=0.36 p=0.83(NS)
	No	23	51.11%	22	48.89%	45	
	Dont know	1	50.00%	1	50.00%	2	

Table 5: Association between awareness about NAFLD and its management with educational background of patients with hypertension.

		Education level				n	Chi square test
		School		College			
		n	%	n	%		
Has your doctor ever mentioned fatty liver?	Yes	6	75.00%	2	25.00%	8	$\chi^2=0.57$ p=0.44(NS)
	No	36	85.71%	6	14.29%	42	
Have you ever heard about Cirrhosis (Shrinkage of liver)?	Yes	2	40.00%	3	60.00%	5	$\chi^2=8.88$ p=0.01**(S)
	No	40	88.89%	5	11.11%	45	
Which of the following do you think can advance to cirrhosis?	Alcohol consumption	36	87.80%	5	12.20%	41	$\chi^2=3.94$ p=0.27(NS)
	Hepatitis	1	50.00%	1	50.00%	2	
	Fatty liver	1	50.00%	1	50.00%	2	
	Others	4	80.00%	1	20.00%	5	
Which of this conditions do you think can cause fatty liver	Obesity	16	84.21%	3	15.79%	19	2=2.26 p=0.12(NS)
	Diabetes	17	89.47%	2	10.53%	19	
	Excess alcohol intake	0	0.00%	0	0.00%	0	
	High cholesterol	7	70.00%	3	30.00%	10	
	Lack of exercise	2	100.00%	0	0.00%	2	
Fatty liver is hereditary	True	29	78.38%	8	21.62%	37	$\chi^2=3.34$ p=0.07(NS)
	False	13	100.00%	0	0.00%	13	
Is there a treatment for fatty liver	Yes	5	100.00%	0	0.00%	5	$\chi^2=1.27$ p=0.53(NS)
	No	26	83.87%	5	16.13%	31	
	Dont know	11	78.57%	3	21.43%	14	
Fatty liver is preventable	True	13	68.42%	6	30.58%	19	$\chi^2=7.37$ p=0.01**(S)
	False	29	93.54%	2	6.46%	31	
Do you think that fatty liver can occur in a non-alcoholic	Yes	27	79.41%	7	20.59%	34	$\chi^2=0.05$ p=0.82(NS)
	No	9	100.00%	0	0.00%	9	
	Dont know	6	85.71%	1	14.29%	7	
Do you think that fatty liver can be cured in its early stage	Yes	29	82.86%	6	17.14%	35	2=2.26 p=0.32(NS)
	No	8	88.89%	1	11.11%	9	
	Dont know	5	83.33%	1	16.67%	6	
How do you think doctors diagnose, liver? (one or more)	Sonogram of liver	7	87.50%	1	12.50%	8	$\chi^2=0.19$ p=0.90(NS)
	Blood test	34	85.00%	6	15.00%	40	
	Body weight/obesity	0	0.00%	0	0.00%	0	
	Not sure	1	50.00%	1	50.00%	2	
Do you think fat in the liver can cause a serious health problem?	Yes	3	100.00%	0	0.00%	3	2=1.82 p=0.40(NS)
	No	38	84.44%	7	15.56%	45	
	Don't know	1	50.00%	1	50.00%	2	

CONCLUSION

The involvement of community health centres and allied health professionals in creating awareness and educating a community about non communicable diseases like NAFLD, hypertension and diabetes mellitus will help promote liver health and prevent liver diseases like NAFLD.

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