PREVALENCE AND ASSOCIATED RISK FACTORS OF NON-ALCOHOLIC FATTY LIVER DISEASE IN ELDERLY EGYPTIAN PATIENTS

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Introduction

Non-alcoholic fatty liver disease (NAFLD) is highly prevalent in the general population worldwide. Most individuals with NAFLD have components of metabolic syndrome (MS) such as type 2 diabetes (T2D), dyslipidemia, hypertension and visceral obesity. Although gender-specific differences in the prevalence of NAFLD have been debated, increasing age does seem to have an influence by increasing the prevalence of NAFLD. However, the age cut-off chosen for the definition of "elderly" may vary across the studies, yielding conflicting results. In fact, while most studies reported an increased prevalence and severity of NAFLD in subjects older than 60 or 65 years, NAFLD appear to be a common but benign finding in an octogenarian population with a prevalence rate of 46.2% . Age-related anatomical and functional changes in the liver can also impact the progression and outcomes of liver disease. In fact, older individuals lose nearly one third of their hepatic volume and perfusion, which may negatively affect the regenerative capacity of the liver. In addition to the age-related lipid accumulation in non-adipose tissue, including liver, older age is also associated with sarcopenia, i.e. decreased muscle mass and function, along with dysregulation of the free radical scavenging systems which can lead to an increase in the oxidative stress potentially promoting the progression of NAFLD.

Aim of the work

This study was designed to: determine the prevalence of NAFLD in the elderly Egyptian patients (above 60 years). detect the associated risk factors as well as comorbidities with NAFLD in the elderly Egyptian patients.

Subjects and Methods

This cross sectional single-center study was conducted in the period January 2021 to April 2023. It included 80 individuals aged 60 and over visited the outpatient internal medicine and hepatology clinics of El Qabbary specialized hospital in Alexandria. Demographic data, clinical condition, investigations, imaging and anthropometric measures information were collected from the patients during their visits. Full informed consent was taken from the patients and approval of the ethical committee of the faculty was fulfilled.

After giving their signed informed consent; All participants underwent: full history taking, complete physical examination (blood pressure, vital signs, and anthropometric measures including hight, weight, BMI and WC), laboratory assessment [fasting plasma glucose (FPG), glycated haemoglobin (HbA1c), total serum cholesterol, high density lipoprotein (HDL-C), low density lipoprotein (LDL-C), serum triglycerides, serum aspartate amino transferase (AST), serum alanine transamiase (ALT) , urinary albumin creatinine ratio (uACR), serum bilirubin,PT, INR, serum albumin, GGT, urea, createnine,

HCV Ab, HBsAg, CBC, FIB-4 index and FLI] and abdominal ultrasound performed by a certified sonographer at the "Egyptian ministry of health and population" using a Siemens Sonoline G40 ultrasound (B-mode).

Results

Table (1): Multivariate logistic regression analysis for factors predictive of NAFLD in studied patients

	B	SE	p-value	Odds	95% CI	
Age	-.045	.044	.311	1.0	0.88	1.04
Gender	-.348	.455	.444	0.7	0.29	1.72
Smoking	.736	.515	.153	2.1	0.76	5.73
Hb	.329	.178	.064	1.4	0.98	1.97
Platelets	-.014	.006	.013	1.0	0.98	1.00
WBCs	.013	.086	.883	1.0	0.86	1.20
Albumin	.458	.585	.434	1.6	0.50	4.98
ALT	.261	.076	.001	1.3	1.12	1.51
AST	.250	.059	< 0.001	1.3	1.14	1.44
Bilirubin	3.948	1.692	.020	51.8	1.88	1429.52
INR	3.778	2.210	.087	43.7	0.58	3323.19
Creatinine	2.814	1.043	.007	16.7	2.16	128.72
Urea	.102	.037	.006	1.1	1.03	1.19
GGT	.147	.051	.004	1.2	1.05	1.28
FIB4	1.851	.493	< 0.001	6.4	2.42	16.71
WC	.131	.031	< 0.001	1.1	1.07	1.21
BMI	.317	.071	< 0.001	1.4	1.20	1.58
Cholesterol	.037	.013	.003	1.0	1.01	1.06
LDL	.036	.014	.008	1.0	1.01	1.06
HDL	-.054	.034	.111	0.9	0.89	1.01
TG	.031	.010	.002	1.0	1.01	1.05
HbA1c	1.140	.270	< 0.001	3.1	1.84	5.31
Prediabetes	-.523	.512	.307	0.6	0.22	1.62
DM	2.860	.598	< 0.001	17.5	5.41	56.35
Dyslipidemia	1.811	.509	< 0.001	6.1	2.26	16.59
HTN	.914	.471	.052	2.5	0.99	6.28
CVD	1.186	.475	.012	3.3	1.29	8.30
CKD	2.007	.820	.014	7.4	1.49	37.15
Albuminuria	2.351	.688	.001	10.5	2.72	40.47
FLI	0.074	0.016	< 0.001	1.07	1.04	1.11

Table (2): Correlation study between FIB-4 score and other studied data in all studied groups.

FIB-4 score	All patients		NAFLD patients		Non-NAFLD patients	
	r	p-value	r	p-value	r	p-value
Age	0.321	0.004	0.454	0.006	0.451	0.002
HbA1C	0.58	< 0.001	0.392	0.02	0.486	0.001
BMI	0.532	< 0.001	0.526	0.001	0.222	0.143
WC	0.298	0.007	0.018	0.918	0.107	0.483
INR	0.359	0.001	0.26	0.131	0.385	0.009

Conclusion

From the results of the present study, the following could be concluded: NAFLD is significantly prevalent benign finding among elderly Egyptians (about 43%), while NASH cirrhosis is by far less prevalent (5%) with no ascites or HCC detected . AST, FIB4, WC, BMI, HbA1c, DM, dyslipidemia and FLI score were highly significant factors predictive of NAFLD with the highest odds ratio for DM supporting that it is the most significant factor. Also, platelets, ALT, bilirubin, creatinine, urea , GGT, cholesterol, LDL, TG, CVD, CKD and albuminuria were significant factors predictive of NAFLD in studied patients. Despite being components of metabolic syndrome and CMRFs, HTN, prediabetes and HDL were insignificant factors predicting NAFLD in this study. BMI and HbA1c are significantly correlated with NASH fibrosis progression in studied NAFLD patients .