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Trends in Lean NAFLD in the United States

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Statement of the Problem: Lean NAFLD can progress to cirrhosis. Our study aims to highlight the prevalence of lean NAFLD in the US and the associated comorbidities. Methodology & Theoretical Orientation: We analyzed transient elastography data from the 2017-2020 NHANES. Findings: We identified 6804 subjects with NAFLD; 1831 (26.9%) had BMI <25 kg/m2 (lean) and 4973 (73.1%) had BMI ≥25 kg/m2 (overweight). In the lean group, 288 of 1831 (15.7%) had NAFLD; 16 of these 288 (5.5%) had significant liver fibrosis and 4 of 288 (1.4%) had cirrhosis. In the overweight group, 3063 of 4973 (61.6%) had NAFLD; 581 of these 3063 (19%) had significant liver fibrosis, and 179 of 3063 (5.5%) had cirrhosis. Compared to the lean subjects, significantly more patients with overweight had NAFLD, significant liver fibrosis and cirrhosis (p-value < 0.001 for all). Compared to patients with lean NAFLD, more patients with overweight NAFLD had DM (27.1% vs. 18.7%, p-value 0.002), HTN (53.4% vs. 44.8%, p-value 0.005), CHF (4% vs. 1.7%, p-value 0.05), HDL <40 mg/dL (23.7% vs. 14.2%, p-value <0.001), fasting insulin level >12 µU/mL (28.8% vs. 11.1%, p-value <0.001), and increased waist circumference (94.7% vs. 63.5%, p-value <0.001). Conclusion & Significance: Previous studies raised the question of whether the phenotype of lean NAFLD might be more progressive than that of obese NAFLD. In our study, patients with lean NAFLD did not have significantly higher rates of comorbidities compared to those with obese NAFLD. Additionally, subjects with lean NAFLD who developed fibrosis did not have significantly higher rates of comorbidities compared to those who did not develop fibrosis. The prevalence of NAFLD in overweight or obese subjects was markedly higher than in lean subjects. In conclusion, Patients with lean NAFLD did not have significantly higher rates of comorbidities compared to those with overweight or obese NAFLD.

Table: BMI < 25 with NAFLD (288 subjects)

Comorbidity	Fibrosis (LSM≥8 kPa) (n=16)	No Fibrosis (LSM<8 kPa) (n=272)	P value
DM	6 (37.5%)	48 (17.6%)	0.09
HTN	11 (54.4%)	118 (43.4%)	0.07
CAD	3 (18.7%)	27 (9.9%)	0.22
CVA	2 (12.5%)	9 (3.3%)	0.12
CHF	1 (6.2%)	4 (1.5%)	0.25
HDL < 40	2 (12.5%)	39 (14.3%)	1
LDL ≥ 140	1 (6.2%)	32 (11.8%)	1
TG > 150	2 (12.5%)	38 (14%)	1
Insulin level > 12 µU/mL	3 (18.7%)	29 (10.7%)	0.4
Waist circumference > 90 cm male, > 80 cm female	8 (50%)	175 (64.3%)	0.29
Male gender	10 (62.5%)	137 (50.4%)	0.44
Age > 50	14 (87.5%)	190 (69.8%)	0.16

Biography

Dr. Omar Alshuwaykh has extensive experience in Gastroenterology and Hepatology. His medical journey began at the University of Baghdad School of Medicine, followed by completing his MD degree at Jordan University of Science and Technology. He then completed Internal Medicine Residency at Wayne State University and further specialized through a Hepatology Fellowship at Stanford University and a Gastroenterology Fellowship at California Pacific Medical Center in San Francisco. He has also pursued a Master of Public Health in Epidemiology and Biostatistics from the University of California Berkeley. His research tenure at Stanford University allowed him to delve into critical areas of gastroenterology and hepatology, resulting in numerous impactful publications. He has authored several peer-reviewed journal articles and presented at major conferences. His work has not only been widely recognized but also cited by leading medical societies, influencing treatment guidelines and practices.

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