

VOLUME 42, NUMBER 2
February 2025

ISSN 0189 - 160X

WAJM

WEST AFRICAN JOURNAL OF MEDICINE

ORIGINALITY AND EXCELLENCE IN MEDICINE AND SURGERY



OFFICIAL PUBLICATION OF
THE WEST AFRICAN COLLEGE OF PHYSICIANS *AND*
WEST AFRICAN COLLEGE OF SURGEONS



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ORIGINAL ARTICLE

Assessing Fibrosis and Steatosis utilizing Transient Elastography (Fibroscan) in Metabolic-dysfunction Associated Steatotic Liver Disease: An Experience from UBTH, Benin City, Nigeria

Évaluation de la Fibrose et de la Stéatose à L'aide de L'élastographie Transitoire (Fibroscan) dans la Maladie Hépatique Stéatosique Associée à un Dysfonctionnement Métabolique: Une Expérience de l'UBTH, Benin City, Nigeria

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ABSTRACT

BACKGROUND: Metabolic dysfunction-Associated Steatotic Liver disease (MASLD) is characterized by hepatic steatosis in the absence of excessive alcohol consumption. Limited data exist on the evaluations of fibrosis in MASLD in Africa.

OBJECTIVES: The study aimed to investigate MASLD prevalence, its presentation pattern, risk factors, and the frequency, degree and risk factors of fibrosis.

METHODS: This prospective cohort study included 150 patients referred to University of Benin Teaching Hospital for MASLD. A structured questionnaire was used for data collection. Laboratory investigations followed standard procedures. After an overnight fast, 50 recruited patients underwent fibroscan examination using the Fibroscan 530 compact model from Echosens, measuring steatosis and fibrosis.

RESULTS: Out of 2390 patients, 153 had MASLD, establishing a prevalence of 6.4%. The mean age was 50.3 ± 11.5 years with a F: M ratio of 2.3:1. The mean controlled attenuation parameter (CAP) score was 269.6 ± 60.3 ; and the median transient elastography (TE) score was 4.95. A strong positive correlation existed between CAP score and waist circumference ($p = 0.037$), Body Mass Index (BMI) ($p = 0.049$) and comorbidities ($p = 0.049$). More than 90% of MASLD patients had no symptoms, with 6% reporting right hypochondrial pain. Fibrosis showed significant associations with BMI ($p = 0.022$), and Waist-to-Hip Ratio ($p = 0.032$). Twelve percent of MASLD individuals exhibited severe fibrosis ($\geq F2$); 4% had cirrhosis, and 8% had F2 fibrosis

CONCLUSIONS: The study highlighted a 6.4% MASLD prevalence, with central obesity, BMI, and comorbidity identified as independent risk factors. Fibroscan revealed 12% of MASLD patients had significant fibrosis with obesity and higher WHR as risk factors.

WAJM 2024; 42 (2): 127-136

KEYWORDS: Fibroscan, Transient elastography, MASLD, NAFLD, Fibrosis, Steatosis, UBTH, Nigeria.

RÉSUMÉ

CONTEXTE: La maladie hépatique stéatosique associée à un dysfonctionnement métabolique (MASLD) se caractérise par une stéatose hépatique en l'absence de consommation excessive d'alcool. Les données sur l'évaluation de la fibrose dans la MASLD en Afrique sont limitées.

OBJECTIFS: L'étude visait à examiner la prévalence de la MASLD, son mode de présentation, ses facteurs de risque ainsi que la fréquence, le degré et les facteurs de risque de la fibrose.

MÉTHODES: Cette étude de cohorte prospective a inclus 150 patients référés à l'Hôpital universitaire de Benin pour MASLD. Un questionnaire structuré a été utilisé pour la collecte des données. Les analyses de laboratoire ont suivi des procédures standard. Après un jeûne nocturne, 50 patients recrutés ont subi un examen Fibroscan à l'aide du modèle compact Fibroscan 530 d'Echosens, mesurant la stéatose et la fibrose.

RÉSULTATS: Sur 2390 patients, 153 présentaient une MASLD, établissant une prévalence de 6,4 %. L'âge moyen était de $50,3 \pm 11,5$ ans avec un ratio F : M de 2,3:1. Le score moyen du paramètre d'atténuation contrôlée (CAP) était de $269,6 \pm 60,3$; et le score médian d'élastographie transitoire (TE) était de 4,95. Une forte corrélation positive existait entre le score CAP et le tour de taille ($p = 0,037$), l'indice de masse corporelle (IMC) ($p = 0,049$) et les comorbidités ($p = 0,049$). Plus de 90 % des patients atteints de MASLD étaient asymptomatiques, tandis que 6 % rapportaient une douleur de l'hypochondre droit. La fibrose montrait des associations significatives avec l'IMC ($p = 0,022$) et le rapport taille-hanche ($p = 0,032$). Douze pour cent des individus atteints de MASLD présentaient une fibrose sévère ($\geq F2$) ; 4 % avaient une cirrhose et 8 % avaient une fibrose F2.

CONCLUSIONS: L'étude a mis en évidence une prévalence de 6,4 % de la MASLD, avec l'obésité centrale, l'IMC et les comorbidités identifiés comme des facteurs de risque indépendants. Le Fibroscan a révélé que 12 % des patients atteints de MASLD présentaient une fibrose significative, avec l'obésité et un rapport taille-hanche élevé comme facteurs de risque.

WAJM 2024; 42 (2): 127-136

MOTS-CLÉS: Fibroscan, Élastographie transitoire, MASLD, NAFLD, Fibrose, Stéatose, UBTH, Nigeria.

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ABBREVIATIONS - MASLD: Metabolic dysfunction-Associated Steatotic Liver Disease; **NAFLD:** Non-alcoholic Fatty Liver Disease; **NASH:** Non-alcoholic steatohepatitis; **HCC:** Hepatocellular carcinoma; **BAFLD:** Both alcohol and fatty liver disease; **dB/m:** Decibels per meter (dB/m); **DM:** Diabetes mellitus; **HBV:** Hepatitis B virus; **HCV:** Hepatitis C virus; **HIV:** Human immunodeficiency virus; **CAP:** Controlled attenuation parameter; **IQR:** Interquartile range; **kPa:** Kilopascals; **LSM:** Liver Stiffness Measurement; **MetALD:** metabolic and alcohol-associated liver disease; **SGLT-1/2:** Sodium glucose transporter- 1/2 inhibitors; **T2DM:** Type 2 diabetes mellitus ; **TE :** Transient Elastography ; **UBTH:** University of Benin Teaching Hospital; **VCTE:** Vibration Controlled Transient Elastography