

## Metabolic dysfunction-associated fatty liver disease and low muscle strength: A comment

Masood Muhammad Karim, Amna Subhan Butt

**Specialty type:** Gastroenterology and hepatology

**Provenance and peer review:** Unsolicited article; Externally peer reviewed.

**Peer-review model:** Single blind

**Peer-review report's classification**

**Scientific Quality:** Grade C

**Novelty:** Grade C

**Creativity or Innovation:** Grade C

**Scientific Significance:** Grade C

**P-Reviewer:** Makovicky P, Czech Republic

**Received:** January 30, 2024

**Revised:** March 12, 2024

**Accepted:** April 18, 2024

**Published online:** May 7, 2024



**Masood Muhammad Karim**, Department of Gastroenterology, The Aga Khan University Hospital, Karachi 74800, Sindh, Pakistan

**Amna Subhan Butt**, Department of Medicine, Aga Khan University Hospital, Karachi 74800, Pakistan

**Corresponding author:** Amna Subhan Butt, FCPS, MBBS, MSc, Associate Professor, Department of Medicine, Aga Khan University Hospital, Stadium Road, Karachi 74800, Pakistan. [amna.subhan@aku.edu](mailto:amna.subhan@aku.edu)

### Abstract

The diagnosis of non-alcoholic fatty liver disease (NAFLD) and metabolic dysfunction-associated fatty liver disease only on the basis of laboratory parameter score such as Hepatic Steatosis Index which includes liver enzymes, gender, basal metabolic index, and presence of diabetic mellitus is not sufficient to exclude other causes of deranged liver enzymes especially medications and autoimmune related liver diseases. As the guideline suggests ultrasound is the preferred first-line diagnostic procedure for imaging of NAFLD, as it provides additional diagnostic information and the combination of biomarkers/scores and transient elastography might confer additional diagnostic accuracy and evident from previous similar studies too.

**Key Words:** Non-alcoholic fatty liver disease; Metabolic dysfunction associated fatty liver disease; Low muscle strength; Hepatic Steatosis Index; Letter to the editor

©The Author(s) 2024. Published by Baishideng Publishing Group Inc. All rights reserved.

**Core Tip:** Combining imaging modalities along with laboratory parameter-based scores increases the diagnostic yield of non-alcoholic fatty liver disease, and helps in the exclusion of the other secondary causes.

**Citation:** Karim MM, Butt AS. Metabolic dysfunction-associated fatty liver disease and low muscle strength: A comment. *World J Gastroenterol* 2024; 30(17): 2371-2373

**URL:** <https://www.wjgnet.com/1007-9327/full/v30/i17/2371.htm>

**DOI:** <https://dx.doi.org/10.3748/wjg.v30.i17.2371>

## TO THE EDITOR

We found the article by Lee *et al*[1] compelling as the article addressed an important aspect of metabolic dysfunction-associated fatty liver disease (MAFLD), which has emerged as an emerging pandemic and a major public health issue worldwide, particularly in Asian countries[1-4]. In this study, the author emphasized the significant yet underexplored link between muscle strength and MAFLD.

However, in the current study, the diagnosis of MAFLD was based on the “Hepatic Steatosis Index” (HSI), a score consisting of non-invasive laboratory parameters. While the HSI demonstrated the highest sensitivity and specificity at 93% and 92%, respectively, there is still a possibility of missing approximately 7%-8% of patients (equivalent to 1400 patients) with MAFLD in the context of this study[5].

Moreover, HSI is calculated as  $HIS = 8 \times [\text{alanine aminotransferase (ALT)/aspartate aminotransferase (AST) ratio}] + \text{basal metabolic index} (+ 2, \text{ if female}; + 2, \text{ if diabetes mellitus})$ . According to this formula deranged liver enzymes (AST and ALT) due to any concomitant cause can result in false positive results when other causes were not ruled out especially medication and autoimmune-related liver injuries which were not excluded in this study.

Furthermore, the European Association Society for Liver Diseases guideline suggests ultrasound as the preferred first-line diagnostic procedure for imaging of MAFLD, as it provides additional diagnostic information. However, the combination of biomarkers/scores with transient elastography might confer additional diagnostic accuracy[6].

In a similar European study about the association between fatty liver disease and low muscle mass by Rigor *et al*[7], the ultrasound abdomen was used to screen patients with fatty liver disease. Additionally, another recent Korean population-based study by Seo *et al*[8] also measured hepatic steatosis based on Fibro scan.

In our opinion, using imaging modalities such as ultrasound abdomen or fibroscan along with laboratory parameter-based scores could have not only increased diagnostic yield but also helped in the exclusion of the other secondary causes.

## FOOTNOTES

**Author contributions:** Karim MM and Butt AS designed research and performed research (literature review); Karim MM wrote the letter; Butt AS revised the letter.

**Conflict-of-interest statement:** Both authors have no conflict of interest to disclose.

**Open-Access:** This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <https://creativecommons.org/licenses/by-nc/4.0/>

**Country/Territory of origin:** Pakistan

**ORCID number:** Masood Muhammad Karim 0000-0002-2513-7842; Amna Subhan Butt 0000-0002-7311-4055.

**S-Editor:** Chen YL

**L-Editor:** A

**P-Editor:** Yu HG

## REFERENCES

- Lee GB, Huh Y, Lee SH, Han B, Kim YH, Kim DH, Kim SM, Choi YS, Cho KH, Nam GE. Association of low muscle strength with metabolic dysfunction-associated fatty liver disease: A nationwide study. *World J Gastroenterol* 2023; **29**: 5962-5973 [PMID: 38131000 DOI: 10.3748/wjg.v29.i45.5962]
- Sarin SK, Kumar M, Eslam M, George J, Al Mahtab M, Akbar SMF, Jia J, Tian Q, Aggarwal R, Muljono DH, Omata M, Ooka Y, Han KH, Lee HW, Jafri W, Butt AS, Chong CH, Lim SG, Pwu RF, Chen DS. Liver diseases in the Asia-Pacific region: a Lancet Gastroenterology & Hepatology Commission. *Lancet Gastroenterol Hepatol* 2020; **5**: 167-228 [PMID: 31852635 DOI: 10.1016/S2468-1253(19)30342-5]
- Huh Y, Cho YJ, Nam GE. Recent Epidemiology and Risk Factors of Nonalcoholic Fatty Liver Disease. *J Obes Metab Syndr* 2022; **31**: 17-27 [PMID: 35332111 DOI: 10.7570/jomes22021]
- Eslam M, Newsome PN, Sarin SK, Anstee QM, Targher G, Romero-Gomez M, Zelber-Sagi S, Wai-Sun Wong V, Dufour JF, Schattenberg JM, Kawaguchi T, Arrese M, Valenti L, Shiha G, Tiribelli C, Yki-Järvinen H, Fan JG, Grønbaek H, Yilmaz Y, Cortez-Pinto H, Oliveira CP, Bedossa P, Adams LA, Zheng MH, Fouad Y, Chan WK, Mendez-Sanchez N, Ahn SH, Castera L, Bugianesi E, Ratziu V, George J. A new definition for metabolic dysfunction-associated fatty liver disease: An international expert consensus statement. *J Hepatol* 2020; **73**: 202-209 [PMID: 32278004 DOI: 10.1016/j.jhep.2020.03.039]
- Lee JH, Kim D, Kim HJ, Lee CH, Yang JI, Kim W, Kim YJ, Yoon JH, Cho SH, Sung MW, Lee HS. Hepatic steatosis index: a simple screening tool reflecting nonalcoholic fatty liver disease. *Dig Liver Dis* 2010; **42**: 503-508 [PMID: 19766548 DOI: 10.1016/j.dld.2009.08.002]
- Byrne CD, Targher G. EASL-EASD-EASO Clinical Practice Guidelines for the management of non-alcoholic fatty liver disease: is universal screening appropriate? *Diabetologia* 2016; **59**: 1141-1144 [PMID: 27053232 DOI: 10.1007/s00125-016-3910-y]
- Rigor J, Vasconcelos R, Lopes R, Moreira T, Barata P, Martins-Mendes D. Associations between muscle mass, strength, and performance and

non-alcoholic fatty liver disease. *Minerva Gastroenterol (Torino)* 2023; **69**: 374-381 [PMID: 35343663 DOI: 10.23736/S2724-5985.22.03097-2]

- 8 **Seo JY**, Cho EJ, Kim MJ, Kwak MS, Yang JI, Chung SJ, Yim JY, Yoon JW, Chung GE. The relationship between metabolic dysfunction-associated fatty liver disease and low muscle mass in an asymptomatic Korean population. *J Cachexia Sarcopenia Muscle* 2022; **13**: 2953-2960 [PMID: 36222309 DOI: 10.1002/jcsm.13099]



Published by **Baishideng Publishing Group Inc**  
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA  
**Telephone:** +1-925-3991568  
**E-mail:** [office@baishideng.com](mailto:office@baishideng.com)  
**Help Desk:** <https://www.f6publishing.com/helpdesk>  
<https://www.wjgnet.com>

