Diabetes Research: Open Access

Editorial

DOI: https://doi.org/10.36502/2023/droa.6184

Novel Nomenclature of Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) for Future Hepatology

Hiroshi Bando[1,2,iD*]

[1]*Medical Research/Tokushima University, Tokushima, Japan*

[2]*Japan Low Carbohydrate Diet Promotion Association (JLCDPA), Kyoto, Japan*

Corresponding Author: **Hiroshi BANDO, MD, PhD, FACP** ORCID iD

Address: Tokushima University /Medical Research, Nakashowa 1-61, Tokushima 770-0943, Japan;
Email: pianomed@bronze.ocn.ne.jp

Received date: 19 August 2023; **Accepted date**: 15 September 2023; **Published date**: 03 October 2023

Citation: Bando H. Novel Nomenclature of Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) for Future Hepatology. Diab Res Open Access. 2023 Oct 03;4(1):08-11.

Abstract

Type 2 diabetes (T2D) has close relationships with nonalcoholic fatty liver disease (NAFLD), nonalcoholic steatohepatitis (NASH), and others. The European Hepatology Society International Hepatology Conference (EASL-ILC) 2023 presented the announcement of novel nomenclatures for metabolic dysfunction-associated steatotic liver disease (MASLD) and metabolic dysfunction-associated steatohepatitis (MASH). Furthermore, metabolic dysfunction-associated steatotic liver disease (MetALD) is used to describe those who consume greater amounts of alcohol, defined as more than 210g per week for males and more than 140g per week for females. MASLD may affect about one quarter of adults worldwide. Its criteria include the evidence of hepatic steatosis in three situations: obesity/overweight, T2DM, or the presence of metabolic dysfunction.

Keywords

Metabolic Dysfunction-Associated Steatotic Liver Disease, Metabolic Dysfunction-Associated Steatohepatitis, Metabolic Dysfunction-Associated Steatotic Liver Disease, Non-Alcoholic Fatty Liver Disease, American Association for the Study of Liver Diseases

Abbreviations

MASLD: Metabolic Dysfunction-Associated Steatotic Liver Disease; MASH: Metabolic Dysfunction-Associated Steatohepatitis; MetALD: Metabolic Dysfunction-Associated Steatotic Liver Disease; NAFLD: Non-Alcoholic Fatty Liver Disease; AASLD: American Association for the Study of Liver Diseases

For decades, type 2 diabetes (T2D) has shown close relationships with various diseases, including non-communicable diseases (NCDs), metabolic syndrome (Met-S), dyslipidemia, fatty liver, nonalcoholic fatty liver disease (NAFLD), nonalcoholic steatohepatitis (NASH), and others [1]. As T2D and obesity increase, several problems of Met-S become global health and medical issues [2]. Especially, they seem to be observed in early stages preceding the development of T2DM. The problems among fatty liver, T2DM, and metabolic syndrome have been important. The diagnostic criteria for NAFLD have been used in clinical practice [3]. In particular, NAFLD may be important in the early period preceding the

development of T2D.

In the latest congress of the European Hepatology Society International Hepatology Conference (EASL-ILC) 2023, an impressive presentation was announced in June 2023 [4]. The names of NAFLD and NASH will be renamed with another description. After various discussions, the medical term “metabolic” would be required to be included for the name change. With adequate nomenclature and definitions, the desirable names are MASLD (metabolic dysfunction-associated steatotic liver disease) and MASH (metabolic dysfunction-associated steatohepatitis) [4]. This perspective direction was already identified a few years ago concerning future nomenclature matters [5]. The novel nomenclature was reported by Rinella in the Journal of Hepatology [6]. It was published in late June 2023, and the investigation was led by three major liver disease clinical associations. They used a modified Delphi methodology and an independent panel of medical experts who were unrelated to the nomenclature process. It produced the final recommendations for the acronym and also its diagnostic criteria.

The general progress of the study was observed in the following. The current study included 236 participants from 56 countries worldwide, 2 hybrid conferences, and 4 online surveys [7]. For the survey, the response rates were shown as 78% to 87%. Almost three-quarters of the responders (74%) replied that the previous nomenclature seems to have shortcomings warranting a name change. Approximately more than 60 percent of responders showed some criticism for the words "fat" or "non-alcoholic". Consequently, the adequate term “steatotic liver disease (SLD)” seemed to be applicable for an umbrella medical term which means and includes several etiologies for fatty liver. Furthermore, the word “steatohepatitis” seemed to be a crucial pathological and physiological concept for retaining the background matter.

The novel word chosen to replace NAFLD was metabolic dysfunction-associated steatotic liver disease (MASLD) [6]. During the discussion, an agreement was found that the current definition would include one and/or more of 5 cardiometabolic risk factors. When a patient shows an unknown etiology without any metabolic abnormalities, such a case is evaluated to possess steatotic liver disease (SLD) of unknown etiology. When a patient has higher alcohol intake, except for pure MASLD, one would be called for metabolic dysfunction-associated steatotic liver disease (MetALD). MetALD is used to describe those who consume greater amounts of alcohol, defined as more than 210g per week for males and more than 140g per week for females [8]. Those who have no metabolic parameters or no known cause may show cryptogenic SLD. Thus, an additional category was also observed.

For these new criteria and nomenclature, medical researchers and clinicians seem to be widely supportive. Furthermore, they are not stigmatizing and can improve wide awareness and patient identification. The common words for NAFLD and NASH have a high frequent comorbidity associated with several metabolic diseases, including T2D, cardiovascular disease (CVD), atherosclerotic CVD (ASCVD), cerebral vascular accident (CVA), and others. We expect smooth acknowledgment and prevalence of these novel nomenclatures in the future [9].

The latest report related to MASLD has been found [10]. The relationship of liver enzyme ratio (AST/ALT) (De Ritis Ratio, DRR) and stratified mortality of NAFLD was studied by the National Health and Nutrition Examination Survey (NHANES) III. Cases without risk factors of liver disease except NAFLD (n=11,385) were investigated and divided into two groups with/without NAFLD. Analyses included AST, ALT, GGT, and DRR (categorization into tertiles). As a result, higher DRR and GGT cases with/without NAFLD showed a significantly increased hazard ratio (HR) of all-cause mortality. For the novel perspective of MASLD, its criteria would include the evidence of hepatic steatosis associated with the following three kinds of situations: i) obesity and/or overweight, ii) presence of T2DM, or iii) some evidence of metabolic dysfunction. These various clinical data have been obtained from pathophysiological, epidemiological, diagnostic, and pharmacotherapeutic points of view [9].

The current approach for the novel nomenclature project for reviewing name and definition options included several international medical associations

[11]. They are the American Association for the Study of Liver Diseases (AASLD), the European Association for the Study of the Liver (EASL), the Asian Pacific Association for the Study of the Liver (APASL), the Latin American Association for the Study of the Liver (ALEH), as well as the American Liver Foundation (ALF), the European Liver Patients' Association (ELPA), the Fatty Liver Foundation (FLF), Liver Patients International (LPI), multinational liver societies, and patient advocacy groups. These congresses or groups were informed to nominate experts from each society and to vote for the analyzing process.

MASLD may affect about one quarter of adults across the world and cause health, medical, economic, and other burdens to various societies [12]. Effective pharmacotherapy for MASLD has not been approved yet until now [13]. A higher prevalence of MASLD can be derived from various reasons, such as increased carbohydrate intake, higher intake of calorie energy, reduction of daily physical activity, ordinary sedentary behavior, imbalance of exercise and meal intake, and others [14]. Besides these factors, daily lifestyle situation would be crucial for future health control and prevention of MAFLD [15].

From the mentioned above, the novel concept and names of MAFLD and MASH have been introduced [16]. Additional details concerning these novel nomenclatures have been available in some joint publications of multinational liver societies [17,18]. Clinical and research development in the field of hepatology will be expected in the future [19].

Conflict of Interest

The author has read and approved the final version of the manuscript. The author has no conflicts of interest to declare.

Funding

There was no funding received for this paper.

References

[1] Rojano A, Sena E, Manzano-Nuñez R, Pericàs JM, Ciudin A. NAFLD as the metabolic hallmark of obesity. Intern Emerg Med. 2023 Jan;18(1):31-41. [**PMID**: 36357606]

[2] Shiha G, Alswat K, Al Khatry M, Sharara AI, Örmeci N, Waked I, Benazzouz M, Al-Ali F, Hamed AE, Hamoudi W, Attia D, Derbala M, Sharaf-Eldin M, Al-Busafi SA, Zaky S, Bamakhrama K, Ibrahim N, Ajlouni Y, Sabbah M, Salama M, Anushiravani A, Afredj N, Barakat S, Hashim A, Fouad Y, Soliman R. Nomenclature and definition of metabolic-associated fatty liver disease: a consensus from the Middle East and north Africa. Lancet Gastroenterol Hepatol. 2021 Jan;6(1):57-64. [**PMID**: 33181119]

[3] Younossi Z, Anstee QM, Marietti M, Hardy T, Henry L, Eslam M, George J, Bugianesi E. Global burden of NAFLD and NASH: trends, predictions, risk factors and prevention. Nat Rev Gastroenterol Hepatol. 2018 Jan;15(1):11-20. [**PMID**: 28930295]

[4] Song SJ, Che-To Lai J, Lai-Hung Wong G, Wai-Sun Wong V, Cheuk-Fung Yip T. Can we use old NAFLD data under the new MASLD definition? J Hepatol. 2023 Aug 2:S0168-8278(23)05000-6. [**PMID**: 37541393]

[5] Bando H. Trend for Clinical Use of Metabolic Associated Fatty Liver Disease (MAFLD). Asp Biomed Clin Case Rep. 2021 Apr 30;4(2):99-102.

[6] Rinella ME, Lazarus JV, Ratziu V, Francque SM, Sanyal AJ, Kanwal F, Romero D, Abdelmalek MF, Anstee QM, Arab JP, Arrese M, Bataller R, Beuers U, Boursier J, Bugianesi E, Byrne CD, Castro Narro GE, Chowdhury A, Cortez-Pinto H, Cryer D, Cusi K, El-Kassas M, Klein S, Eskridge W, Fan J, Gawrieh S, Guy CD, Harrison SA, Kim SU, Koot B, Korenjak M, Kowdley K, Lacaille F, Loomba R, Mitchell-Thain R, Morgan TR, Powell E, Roden M, Romero-Gómez M, Silva M, Singh SP, Sookoian SC, Spearman CW, Tiniakos D, Valenti L, Vos MB, Wai-Sun Wong V, Xanthakos S, Yilmaz Y, Younossi Z, Hobbs A, Villota-Rivas M, Newsome PN, on behalf of the NAFLD Nomenclature consensus group. A multi-society Delphi consensus statement on new fatty liver disease nomenclature. Journal of Hepatology. 2023.

[7] Ratziu V, Boursier J; AFEF Group for the Study of Liver Fibrosis. Confirmatory biomarker diagnostic studies are not needed when transitioning from NAFLD to MASLD. J Hepatol. 2023 Aug 3:S0168-8278(23)04996-6. [**PMID**: 37543307]

[8] Song SJ, Lai JC, Wong GL, Wong VW, Yip TC. Can we use old NAFLD data under the new MASLD definition? J Hepatol. 2023 Aug 2:S0168-8278(23)05000-6. [**PMID**: 37541393]

[9] Bando H. Recent perspectives for combined status of type 2 diabetes mellitus (t2dm) and non-alcoholic fatty liver disease (nafld). Edel J Biomed Res Rev. 2021;3:9-11.

[10] Grob SR, Suter F, Katzke V, Rohrmann S. The Association between Liver Enzymes and Mortality Stratified by Non-Alcoholic Fatty Liver Disease: An Analysis of NHANES III. Nutrients. 2023 Jul 7;15(13):3063. [**PMID**: 37447388]

[11] American Association for the Study of Liver Diseases, Latin American Association for the Study of the Liver, European Association for the Study of the Liver. A call for unity: The path towards a more precise and patient-centric nomenclature for NAFLD. Hepatology. 2023 Jul 1;78(1):3-5. [**PMID**: 37192775]

[12] Eslam M, Sanyal AJ, George J; International Consensus Panel. MAFLD: A Consensus-Driven Proposed Nomenclature for Metabolic Associated Fatty Liver Disease. Gastroenterology. 2020 May;158(7):1999-2014.e1. [**PMID**: 32044314]

[13] 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 Feb;5(2):167-28. Erratum in: Lancet Gastroenterol Hepatol. 2020 Mar;5(3):e2. [**PMID**: 31852635]

[14] Inoue Y, Qin B, Poti J, Sokol R, Gordon-Larsen P. Epidemiology of Obesity in Adults: Latest Trends. Curr Obes Rep. 2018 Dec;7(4):276-88. [**PMID**: 30155850]

[15] Araújo J, Cai J, Stevens J. Prevalence of Optimal Metabolic Health in American Adults: National Health and Nutrition Examination Survey 2009-2016. Metab Syndr Relat Disord. 2019 Feb;17(1):46-52. [**PMID**: 30484738]

[16] Semmler G, Wernly B, Datz C. What's in a name? New nomenclature for steatotic liver disease - to be or not to be? J Hepatol. 2023 Aug 9;S0168-8278(23):05048-51. [**PMID**: 37567365]

[17] Shipman KE. Sample types and patient preparation required when adopting the new fatty liver disease nomenclature. J Hepatol. 2023 Aug 8.

[18] De A, Bhagat N, Mehta M, Taneja S, Duseja A. Metabolic dysfunction-associated steatotic liver disease (MASLD) definition is better than MAFLD criteria for lean patients with NAFLD. J Hepatol. 2023 Aug 7;S0168-8278(23):05044-54. [**PMID**: 37558135]

[19] American association for the study of liver diseases (AASLD). Multinational Liver Societies Announce New “Fatty” Liver Disease Nomenclature That Is Affirmative and Non-Stigmatizing. June 24, 2023.

Keywords: Metabolic Dysfunction-Associated Steatotic Liver Disease, Metabolic Dysfunction-Associated Steatohepatitis, Metabolic Dysfunction-Associated Steatotic Liver Disease, Non-Alcoholic Fatty Liver Disease, American Association for the Study of Liver Diseases