Changing from NAFLD to MASLD: Prevalence and progression of ASCVD risk are similar between NAFLD and MASLD in Asia

Running title: ASCVD risk in Asia: Changing from NAFLD to MASLD

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To the editor,

Patients with steatotic liver disease (SLD) linked to cardiometabolic dysregulation
have a higher incidence of extrahepatic disease, including atherosclerotic cardiovascular disease
(ASCVD). In June 2023, the consensus group composed of multiple societies opted to replace
the term nonalcoholic fatty liver disease (NAFLD) with metabolic dysfunction-associated
steatotic liver disease (MASLD), aiming to minimize the potential for stigma and more accurately
reflect its underlying pathophysiology. MASLD requires a new inclusion criterion of "the
presence of at least one or more cardiometabolic risk factors," which reflects the importance of
cardiometabolic dysregulation in patients with SLD. While the use of alternative terminology
can lead to occasional misunderstandings and hinder progress, it is crucial to extend investigations
on NAFLD to MASLD. This will ensure that valuable research resources are effectively utilized
and contribute to the advancement of knowledge in this field.

We aimed to compare the prevalence and progression of ASCVD risk in patients with
NAFLD and those with MASLD in Asia. This investigation included 7,286 consecutive health
check examinees who were subjected to ultrasonography and monitored at the Saga Health and
Clinical Examination Center (Saga, Japan) from January 2010 to March 2020. All the individuals
were Asian. We eliminated 895 participants from our sample because of insufficient data on
alcohol consumption habits (n = 541), alcohol consumption ≥60 g/day (n = 161), hepatitis B virus
infection (n = 81), and hepatitis C virus infection (n = 112). The study population comprised 2,306
individuals diagnosed with SLD.

NAFLD was diagnosed in 63.4% (1,462/2,306) of the patients, including 98 who did
not fulfill the cardiometabolic criteria for MASLD (Figure 1A). These cases were classified as
cryptogenic SLD, and a significant proportion (93.3%) of patients with NAFLD were also
diagnosed with MASLD. Our findings align well with those of previous studies that reported that
almost all of NAFLD patients fulfilled the MASLD criteria. There were no significant differences in age, sex, baseline Suita score, or Framingham
risk score between NAFLD and MASLD group [Suita score, low/middle/high 795/531/79 vs.
715/521/79, p = 0.507; Framingham Risk Score, low/high, 1,025/239 vs. 948/235, p = 0.543]. We
defined the event as worsening of the Suita score [from low-risk (≤40) to middle-risk (41–55) or high-risk (≥56)] or Framingham risk score [from low-risk (<15) to high-risk (≥15)]. To compare the incidence of worsening ASCVD risk scores between the groups, we constructed Kaplan-Meier curves (Figure 1B, C). The rate of five-year/ten-year cumulative incidence of worsening scores was not significantly different between patients with NAFLD and those with MASLD (Figure 1B, C). These results indicate that the prevalence and progression of ASCVD risk are similar in patients with MASLD and NAFLD. These results were similar to previous studies comparing the differences between MASLD and NAFLD augmented the risk of cardiovascular diseases, including ASCVD. Although previous studies have reported from the U.S. and the EU, our report highlights similar importance in Asia.

In conclusion, data on ASCVD obtained using the term NAFLD can be extrapolated to MASLD.

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Authors’ contributions
Hiroyuki Suzuki and Tsubasa Tsutsumi: study concept, design, and drafting; Keisuke Amano: data extraction, interpretation of data, and critical revision of the manuscript; Machiko Kawaguchi: interpretation of data, statistical analysis, and interpretation of data and critical revision of the manuscript; Takumi Kawaguchi: study concept, interpretation of data and critical revision of the manuscript.

Conflict of interest
Takumi Kawaguchi received lecture fees from Janssen Pharmaceutical K.K., Taisho
Younossi ZM, Paik JM, Stepanova M, Ong J, Alqahtani S, Henry L. Clinical profiles and mortality rates are similar for metabolic dysfunction-associated steatotic liver disease and non-alcoholic fatty liver disease. J Hepatol 2024.


Hagstrom H, Vessby J, Ekstedt M, Shang Y. 99% of patients with NAFLD meet MASLD criteria and natural history is therefore identical. J Hepatol 2024;80:e76-e77.


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Figure Legends

Figure 1. Differences in the incidence of worsening atherosclerotic cardiovascular disease risk scores between the NAFLD and MASLD groups.

(A) Prevalence of NAFLD and MASLD in the study cohort. (B, C) Differences in the incidence of worsening Suita score (B) and Framingham risk score (C) between the NAFLD and MASLD groups.

Abbreviations: MAFLD, metabolic dysfunction-associated fatty liver disease; NAFLD, non-alcoholic fatty liver disease; ASCVD, atherosclerotic cardiovascular disease.