



Diet quality and nonalcoholic fatty liver disease

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Nonalcoholic fatty liver disease (NAFLD) is the most common cause of chronic liver disease and comprises a wide range of clinical symptoms from nonalcoholic fatty liver to nonalcoholic steatohepatitis (NASH), advanced fibrosis, and cirrhosis (1). Obesity is the major risk factor of NAFLD and its main treatment is lifestyle modifications, including weight management, dietary changes and physical activity (2).

The association of several micro- and macro-nutrients with NAFLD has been documented (3,4). As we already know, since various nutrients of diet interact with each other, to overcome this problem, nutritional epidemiologists suggest a holistic view of dietary patterns (5). There are two approaches of the holistic view which include: posteriori dietary pattern which is based on statistical modelling of dietary data and the priori dietary pattern, the theoretical dietary pattern known as diet quality indices. Diet quality scores are mostly based on adherence to dietary guidelines or representing particular dietary patterns such as the Mediterranean diet (6,7). We should however keep in mind that although dietary scores generally show diet quality, they need to be disease specific. Two more frequent dietary scores are the Mediterranean-style diet score (MDS) and alternative healthy eating index (AHEI), of which the former is quantified based on adherence to the traditional Mediterranean diet and the latter on foods and nutrients, predictive of the risk of chronic disease (8,9). Higher scores of MDS and AHEI reveal higher diet quality and predict several chronic diseases such as obesity, cardiovascular disease, and diabetes (10). Dietary guidelines have recommended the Mediterranean diet for treatment of

NAFLD and its beneficial effects have been reported (11).

Similar to the limitations of most dietary scores the MDS and AHEI have their limitations in predicting NAFLD; these scores do not include the effects of some well-known dietary factors related to NAFLD such as refined grains and high fat dairy (12), but, they do cover the main factors of diets and focus on various types of dietary fats (8,9), and their resulting associations of both with NAFLD, which have been confirmed (13). The Mediterranean-style diet score and AHEI have been recognized as good markers of diet quality and their assessments of healthy eating behaviours and food choices on the basis of which the dietary patterns of populations are determined.

The Ma *et al.* study published in this issue of the *Hepatobiliary Surgery and Nutrition Journal* (14) investigates the prospective association between 6-year changes of MDS and AHEI scores and incident NAFLD at follow-up; the participants who had higher scores of MDS and AHEI had significant lower risks of NAFLD, after adjusting for potential confounders. In addition, they reported that higher adherence to MDS and AHEI was a protective index against the genetic risk factors of NAFLD. Some dietary components of MDS and AHEI showed beneficial associations with NAFLD, although when these factors are accumulated in the form of a dietary index, the odds of NAFLD decreases even further, which strongly emphasizes the importance of implementation of dietary patterns. The strengths of the Ma *et al.* study are its prospective design with suitable follow-up time for changes of NAFLD, two dietary measurements at baseline and follow-up,

investigating dietary changes as exposure variables, and assessing the interaction of diet with genetic risk score for changes of liver fat accumulation. Dietary assessment was conducted using food frequency questionnaire (FFQ), which is not a gold standard for investigating the diet quality and has some defects, however it is extensively used in cohort studies and is known to be an appropriate method in long term researches. Using the MDS in a non-Mediterranean region helps to provide worldwide recommendations in different populations and represents the validity of MDS with NAFLD. Generally, findings the above mentioned study indicates that higher adherence to healthy diets, independent of weight management, physical activity, and smoking is related to lower risk of NAFLD, while addressing the importance of healthy diets in modifying the any potential adverse genetic effects of NAFLD outcomes.

Scientists are fast moving towards ascertaining the interaction of diet and genetic characteristics for prevention and treatment of various diseases. Further prospective studies in different populations are essential for the determination of diet-genetic interactions in NAFLD and to extract main related dietary factors of NAFLD for generating a specific diet score to facilitate its prevention.

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Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

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