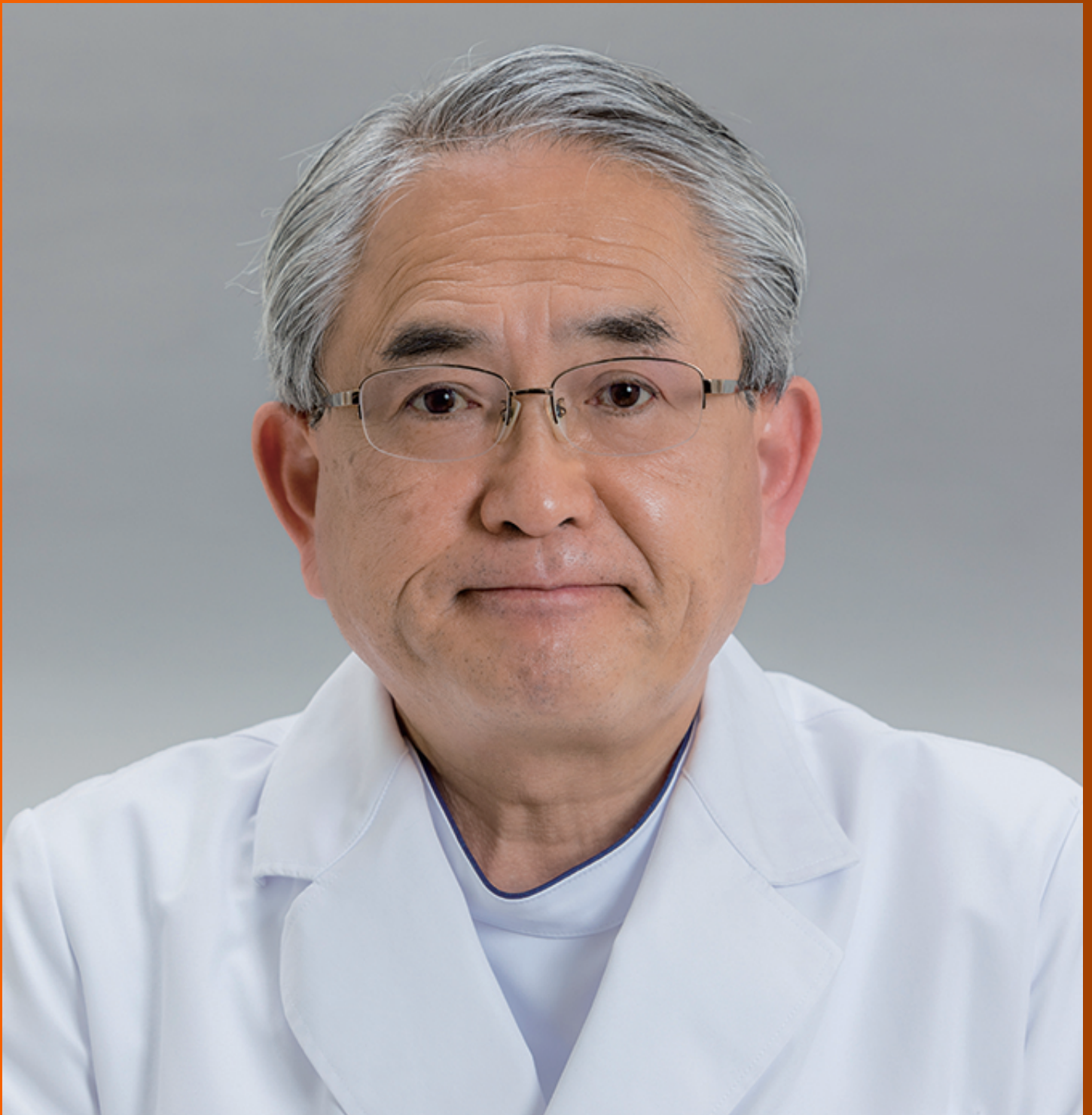


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Quantitative assessment of self-management in patients with non-alcoholic fatty liver disease: An unmet clinical need

Raffaele Borriello, Giorgio Esposito, Irene Mignini, Antonio Gasbarrini, Maria Assunta Zocco

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Abstract

In this editorial we comment on the article titled “Establishment and validation of an adherence prediction system for lifestyle interventions in non-alcoholic fatty liver disease” by Zeng *et al* published in a recent issue of the *World Journal of Gastroenterology*. Non-alcoholic fatty liver disease (NAFLD) represents one of the current challenges in hepatology and public health, due to its continuous growing prevalence and the rising incidence of NAFLD-related fibrosis, non-alcoholic steatohepatitis and cirrhosis. The only effective therapeutic strategy for this disease is represented by encouraging patients to improve their lifestyle through the modification of dietary intake and increased physical exercise, but the effective application of such modifications is often limited by various factors such as lack of information, psychological barriers or poor social support. While poor adherence to a healthy lifestyle can be decisive in determining the clinical outcome, in daily practice there is a lack of quantitative instruments aimed at identifying patients with the lowest adherence to lifestyle changes and higher risk of disease progression in the course of follow-up. In this article, Zeng *et al* propose a quantitative scale to assess the grade of adherence of patients with NAFLD to healthy lifestyle intervention, called the Exercise and Diet Adherence Scale (EDAS). This scale, consisting of 33 items divided into 6 dimensions which relates to six subjective aspects in the self-management of NAFLD, has shown a good correlation with the identification of the sub-cohort of patients with the highest reduction in caloric intake, increase in physical exercise, probability of a reduction in liver stiffness measurement and alanine aminotransferase levels. The correlation among clinical outcomes and specific dimensions of this scale also highlights the pivotal role of a good and confidential doctor-patient relationship and of an effective communication. There is an urgent need for practical and effective instruments to assess the grade of self-management of NAFLD patients, together with the development of multidisciplinary teams with the aim of applying structured behavioral interventions.

Key Words: Non-alcoholic fatty liver disease; Non-alcoholic steatohepatitis; Liver cirrhosis; Metabolic associated fatty liver disease; Metabolic associated steatohepatitis; Insulin resistance; Self-management; Self-management measurement; Patient education

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Core Tip: Although the only therapeutic strategy in patients affected by non-alcoholic fatty liver disease is represented by a modification in their lifestyle and dietary habits, today there are still no validated instruments to perform a quantitative evaluation of the grade of self-management and self-care of these patients. In this editorial, we comment on a new score proposed recently which could fill this gap in clinical practice, and highlight the urgent need for effective instruments to assess this aspect together with the development of multidisciplinary teams with the aim of applying structured behavioral interventions.

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INTRODUCTION

The global burden of non-alcoholic fatty liver disease (NAFLD) represents a current issue in public health, with an estimated prevalence of more than 32% worldwide[1] and global evidence of a constant growing trend[2].

In this alarming scenario, one of the most challenging aspects in the management of this disease is represented by the absence of currently approved drugs to treat this condition[3]. Indeed, even if a recent phase III trial has shown promising results with a new drug able to contrast non-alcoholic steatohepatitis with liver fibrosis[4], the only validated therapeutic option to reverse the condition of NAFLD is still represented by a lifestyle intervention related to patients' dietary habits and physical exercise routine[5]. The adoption of structured interventions on dietary composition, more specifically with a reduction in saturated fats, refined carbohydrates and sugar, and increased physical activity have shown a benefit on fat deposition and fibrosis which is proportional to the intensity of the lifestyle modifications. However, their effective application is often limited by low patient adherence to these indications, mainly due to poor knowledge of the disease, psychological barriers or lack of social and familial support[3,6]. Indeed, a multidisciplinary approach with psychological and nutritional specialist support is highly recommended[3].

In this setting, the main factor influencing the clinical outcome of NAFLD is represented by the grade of patient's self-management of the disease. Self-management can be defined as the attitude of an individual to manage the symptoms, the treatments and the physical and psychosocial consequences of a chronic condition[7], and thus the ability to be in charge of maintaining permanent behavioral and lifestyle modifications able to improve the prognosis of a disease.

Although attention is paid to informing patients regarding the role of self-care in NAFLD[8], there are few instruments able to measure the grade of efficacy of patients' self-management behaviors and the grade of adherence to lifestyle interventions in daily practice. Indeed, the main way to verify patients' compliance remains their subjective self-reporting. Thus, an unmet need in the management of NAFLD is represented by the introduction of validated, quantitative and reproducible instruments able to identify early the patients with the highest probability of failing to improve dietary habits or modify their exercise routine and the need for further intervention.

ASSESSING ADHERENCE AND SELF-MANAGEMENT IN NAFLD PATIENTS

In the article published in a recent issue of *World Journal of Gastroenterology* by Zeng *et al*[9] named "Establishment and validation of an adherence prediction system for lifestyle interventions in non-alcoholic fatty liver disease" the authors propose a quantitative scale, the Exercise and Diet Adherence Scale (EDAS), to assess the grade of compliance of patients with NAFLD to dietary and lifestyle intervention. The EDAS consists of a multidimensional questionnaire comprising 33 items divided into 6 dimensions, which were designed after several meetings among clinicians and selected NAFLD patients focused on the reasons affecting their exercise and diet adherence. The dimensions in the questionnaire are composed of both individual factors and factors depending also on the grade of knowledge of the disease and good communication among clinicians and patients. In particular, the six dimensions analyzed are "understanding and valuing", "belief", "self-control of diet", "strengthen exercise self-control", "control dietary conditions" and "strengthen exercise conditions".

The EDAS score can vary from a minimum of 33 to a maximum of 165 and, when tested on a sample of 84 NAFLD patients, has shown a good correlation with increased physical exercise and reduced caloric intake. In particular, an EDAS score > 116 identified the sub-cohort of patients with a reduction in daily caloric intake of at least 500 kcal/day and

the highest number of steps per day (≥ 1000). A score above this cut-off was also associated with a higher probability of improvement in liver stiffness measurement and alanine aminotransferase values. On the other hand, an EDAS < 97 indicated lack of daily exercise and a caloric reduction of less than 50 kcal/day. Based on these results, the authors suggest the application of further robust interventions (here proposed as the early addition of hepatoprotective drugs) under this cut-off. The EDAS score seems to be a very simple, effective and repeatable tool to select patients who will not benefit from lifestyle interventions or their self-management attitude. However, this study has two important limitations. First, the monocentric design with a relatively small sample may have caused selection bias. Second, the short duration of follow-up (6 months), makes the EDAS score still not evaluable for long-term outcomes.

However, this is the first score proposed specifically for measuring the grade of adherence to dietary and exercise routine changes in NAFLD patients with promising results in clinical practice after a multicenter validation.

The possibility of quantitatively assessing patients' attitude to self-manage NAFLD consequences has been a topic of growing interest in recent years.

In a recent cross-sectional study, Kwon *et al*[10] attempted to evaluate the grade of self-management and the associated factors in a cohort of Korean patients with NAFLD.

Even if this study presents some similarities with the paper by Zeng *et al*[9], it was not focused on the objective measurement of patients' adherence to dietary and exercise modifications but rather on a global perspective of patient's self-care, including lifestyle interventions, adherence to medical treatments and social dimension. In particular the authors proposed a questionnaire based on 6 main aspects: Lifestyle management, compliance to medical treatments, management of medication and dietary supplements, alcohol consumption, sleep management and family support[11]. Interestingly, they demonstrated that the factor better associated with the final outcome was the grade of patients' belief in their capabilities of performing behaviors for achieving a specific goal (defined as "self-efficacy")[10].

A similar study was recently conducted by Zhou *et al*[6] on a cohort of Chinese patients with NAFLD. Also in this case, the quantitative assessment of self-management was performed through a specific questionnaire based on 5 main sections: disease control and prevention, management of daily life, disease knowledge management, psychological cognitive management, and bad lifestyle management. Among the variables influencing patients' adherence to lifestyle management factors, the grade of educational health and knowledge of the disease had a pivotal role.

It is noteworthy that all the aforementioned factors are explored also in the newly proposed EDAS questionnaire (specifically in the dimensions of "belief" and "understanding and valuing"), suggesting a potential role of this questionnaire not only in predicting the adherence to dietary routine and exercise, but also in the evaluation of the global level of patient self-management.

All these studies also highlighted the pivotal role of an adequate grade of information and patients' knowledge of the pathology and of the possible consequences of their behavior on the course of the disease. A good knowledge of the disease and a good doctor-patient relationship may enhance patients' adherence to a healthy lifestyle and represent the cornerstone from which lifestyle intervention should begin.

CONCLUSION

In conclusion, the EDAS score seems to be an interesting option for filling a gap in the daily routine evaluation of patients with NAFLD. Assessing the grade of self-management and lifestyle adherence of these patients is emerging as an unmet need in clinical practice and new practical instruments to effectively evaluate the grade of adherence to daily routine modifications are urgently needed. Thus, the EDAS score represents a new and simple tool for early identification of patients who could benefit from more structured changes such as multidisciplinary interventions, psycho-social support or hepatoprotective drugs. Further studies with multicenter design are needed to validate these findings.

FOOTNOTES

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