COMMENTARY

Differentiating between benign and non-benign obesity: Look at the liver

Obésité bénigne et non bénigne : le rôle du foie

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Summary

Several recent experimental and epidemiological studies suggest that some forms of obesity may be benign and do not carry high risk of development of diabesity related disorders. This commentary discusses the available data supporting this concept, as well as the pathophysiological mechanisms.

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Current guidelines recommend weight-loss therapy for patients with a BMI superior or equal to 30 kg/m² and for patients with a BMI superior or equal to 25 kg/m² who additionally have a high-risk waist circumference amongst other risk factors. However, there is substantial heterogeneity within obese subjects as to their overweight-associated health risks [1,2], suggesting the need for detailed assessment of body composition together with energy, glucose, and lipid metabolism.

Based on cross-sectional data on 5440 adult participants of the National Health and Nutrition Examination Survey (NHANES) 1999–2004, 51.3% of overweight and 31.7% of obese adults were metabolically healthy as defined via the absence of cardiometabolic abnormalities, including elevated blood pressure, hyperlipidemia, insulin resistance, and elevated serum levels of C-reactive protein [1]. Correlates of no- or low-risk in overweight and obese subjects were young age, ethnicity, high leisure time, physical activity, and a small waist circumference. In another clinical study, 25.4% of obese subjects were characterized as metabolically benign [2]. Body composition analyses (including measurements of ectopic fat in the liver and muscle by MR-spectroscopy) together with assessments of insulin resistance, aerobic fitness, and intima-media thickness of the common carotid artery, showed that metabolically-benign compared with non-metabolically-benign obese subjects had a similar BMI, waist circumference, and subcutaneous abdominal fat, but had slightly lower visceral fat mass and higher ectopic fat deposits in muscle and particularly in the liver [1].

One hypothesis linking obesity to morbidity is the adipose tissue expandability hypothesis. The adipose tissue expandability hypothesis states that a failure in the capacity for adipose tissue expansion, rather than obesity per se, is the key factor linking positive energy balance and type 2 diabetes, and related morbidities [3]. All individuals possess a
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According to the above studies, a simple way to differentiate benign and non-benign obesity could be to look at the liver. It remains to be determined whether ALT, GGT levels and ultrasonography are enough accurate to provide such information and whether other tools, such as surrogate blood tests ("Steatotests"), MRI technologies... could be more informative and powerful.

Conflict of interest

None.

References