

Noninvasive Clinical Model for the Diagnosis of Nonalcoholic Steatohepatitis in Overweight and Morbidly Obese Patients undergoing to Bariatric Surgery

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Abstract

Background: Liver biopsy, an invasive method, is the gold standard for differentiate nonalcoholic steatohepatitis (NASH) from other stages of fatty liver disease. A noninvasive test to diagnose NASH and disease severity before surgery and also for monitoring disease status after bariatric surgery (BS) will be an important medical challenge.

Aim: To create a noninvasive biomarkers model for the diagnosis of NASH in overweight, obese and morbidly obese patients (MOP).

Patients and methods: Sixty patients (mean BMI= 47.81kg/m²) were admitted after exclusion of other causes of liver disease. Liver biopsies were obtained at the time of the bariatric surgery or by percutaneous liver biopsy and graded using Kleiner score. Continuous variables were compared using Wilcoxon rank sum test and for prediction of NASH we used logistic regression.

Results: Logistic regression analysis showed that BMI, ALT, AST, alkaline phosphatase (ALP), HOMA-R, hs-CRP, M30, M65, leptine and adiponectine levels remained independent predictors for NASH (p<0.02). Using AUC analysis, we established the following cutoff levels being indicative of NASH: BMI ≥ 47 kg/m², ALT ≥ 32 IU/mL, AST ≥ 25 IU/mL, ALP ≥ 85 IU/mL, HOMA-IR ≥ 4 , M65 ≥ 389 U/L. Adiponectine ≤ 13.5 mg/L. A NASH-score, calculated as the sum of these 7 parameters, at a cutoff level of 4 points, can accurately predict NASH (sensitivity of 90%, specificity of 93.94% and AUC of 0.9576).

Conclusions: We propose a noninvasive model for NASH diagnosis in MOP that should be validated prospectively. Using this noninvasive score, NASH would be predicted without the risks of liver biopsy.

Key words: steatohepatitis, noninvasive biomarkers, obese, bariatric surgery

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