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Abstract

TITLE: Serum microRNA-34a: A potential biomarker for liver inflammation in non-alcoholic fatty liver disease.

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ABSTRACT BODY:
Abstract Body: Background: Non-alcoholic fatty liver disease (NAFLD) has become a worldwide health concern because it is an emerging etiology of cirrhosis and hepatocellular carcinoma. Numerous microRNAs (miR) have been contributed to the pathogenesis of NAFLD. MiR-34a is a non-coding RNA contributing to liver injury by miR-34a/SIRT1/p53 apoptosis pathway. Recent data have showed that patients with NAFLD have higher serum miR-34a than the controlled group. However, there is no report directly examines the correlation between serum level of miR-34a and degree of liver inflammation.
Objectives: To study the correlation between serum level of miR-34a and degree of liver inflammation evaluated by NAFLD activity score (NAS, range 0-8) in NAFLD patients.
Material and methods: Forty-three NAFLD patients were included and confirmed diagnosis by liver biopsy. All liver specimens were graded for NAS. Baseline characteristics data and blood sample were obtained within the biopsy day. Serum miR-34a was analyzed by quantitative real time PCR method (Applied Biosynthesis™) and expressed as copies/μL.
Results: The mean age of NAFLD patients was 47.1 ± 13.6 year with female of 56%. Their mean body mass index (BMI) was 32.3 ± 16.4 kg/m^2. Obesity was found in 74.4%, and metabolic syndrome was 76.4%. Liver histopathology showed that 55.8% of patients had NAS ≥4 and the remaining of 44.2% had NAS <4. Two-third of patients (67.4%) had histopathology compatible with NASH and significant fibrosis (≥ F2) was found in 25.6%. Serum level of miR-34a showed significant correlation with NAS (r = 0.44, P = 0.003) (Figure 1), degree of steatosis (r = 0.34, P = 0.026), degree of ballooning (r = 0.31, P = 0.043), and degree of fibrosis (r = 0.34, P = 0.002), whereas miR-34a was not correlated with the degree of lobular inflammation (r = 0.21, P = 0.178). Interestingly, serum miR-34a in patients with NAS ≥4 was significantly higher than those with NAS <4 (338.9 ± 353.2 vs 118.4 ± 154.9, P = 0.01) (Figure 2). There was no significant correlation between serum miR-34a and the other variables including age, body weight, height, and BMI.
Conclusion: Serum level of microRNA-34a had significantly fair to good correlation with NAS and degree of fibrosis which represent the severity of inflammation. Additionally, serum miR-34a level in patients with NAS ≥4 was significantly higher than those with NAS <4. Thus, microRNA-34a may serve as a potential biomarker of liver inflammation and fibrosis in NAFLD patients.
(no table selected)

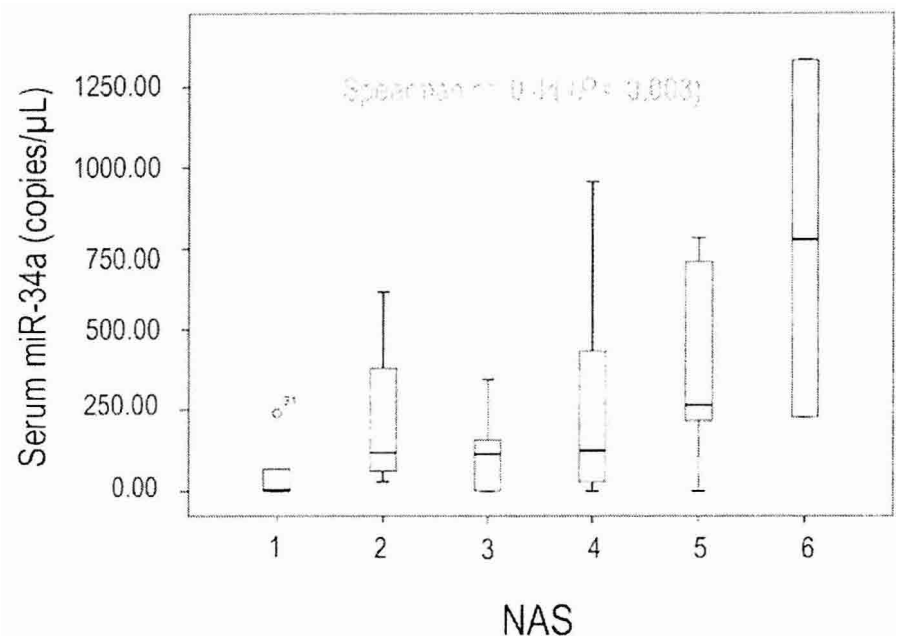
Serum miR-34a (copies/µL)
1250.00
1000.00
750.00
500.00
250.00
0.00
1
2
3
4
5
6
NAS

Figure 1

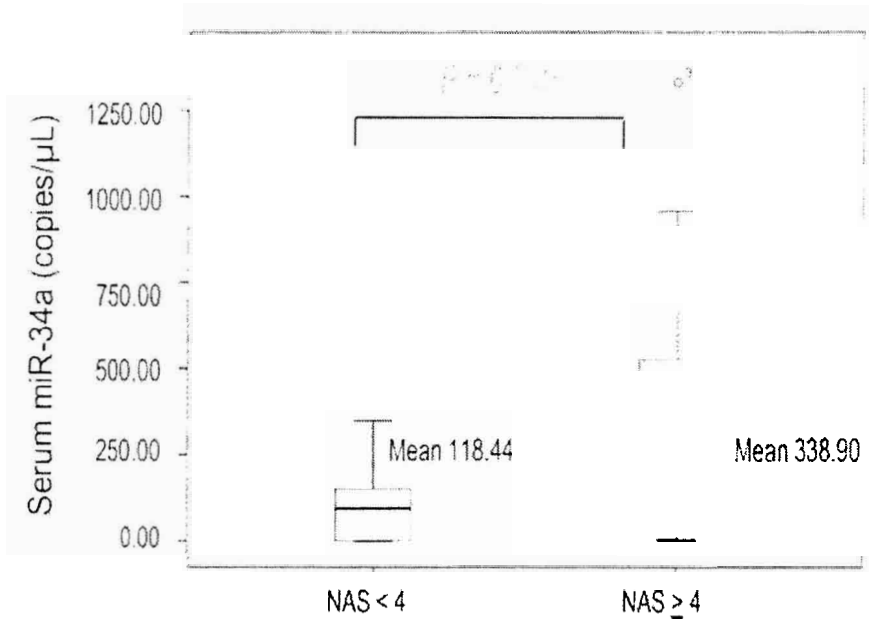
Serum miR-34a (copies/μL)
1250.00
1000.00
750.00
500.00
250.00
0.00
Mean 118.44
Mean 338.90
NAS < 4
NAS ≥ 4

Figure 2