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## **Influence of metabolic syndrome components in the course of covid-19 in patients with nonalcoholic fatty liver disease**

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### **Abstract**

**Background:** Covid-19 was emerged in China in the late of 2019 and has been spread around the world causing global pandemic. There are emerging data that novel coronavirus may affect in any body part. Previous studies have been shown that metabolic syndrome was associated with nonalcoholic fatty liver disease.

**Purpose:** We aimed to estimate the possible influence of metabolic syndrome components in the course of Covid-19 in patients with nonalcoholic fatty liver disease.

**Methods:** 172 consecutive patients (aged 38-72 years; mean age 54.4±12.8 years; male=47%) with nonalcoholic fatty liver disease and metabolic syndrome who underwent Covid-19 were enrolled in this study. Patients were divided into two groups by 86 in each group according to the presence or absence of metabolic syndrome. All baseline, anthropometric, laboratory and instrumental data were obtained and analyzed. All statistical analysis were performed by STATA software.

**Results:** Patients with concomitant metabolic syndrome (Group I) had severe Covid-19 than those without it ( $P<0.05$ ). 18% out of Group I patients had severe Covid-19 whilst 11% out of Group II patients had severe course of the infective disease. Multiple regression logistic analysis showed that among metabolic syndrome components having abdominal obesity (2.6; 1.5-4.2; CI 95%;  $P<0.05$ ), insulin resistance (2.1; 1.3-3.8' CI 95%;  $P<0.05$ ), hypertension (1.5; 1.2-2.3; CI 95%;  $P<0.05$ ) tended have a severe Covid-19 in patients with nonalcoholic fatty liver disease. When we separately analyzed by gender there was not significant changes between men and women ( $P>0.05$ ).

**Conclusion:** Metabolic syndrome was significantly associated with severe Covid-19 in patients with nonalcoholic fatty liver disease. Among metabolic syndrome components abdominal obesity, insulin resistance and hypertension independently associated with severe Covid-19 regardless of gender. Further studies are required with large amount of patients.

**Keywords:** metabolic syndrome, nonalcoholic fatty liver disease, covid-19

### **Funding and Conflicts of Interest**

None