

## NONALCOHOLIC FATTY LIVER DISEASE: CLINICAL FEATURES, DIAGNOSIS AND OUTCOMES

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### Abstract

Nonalcoholic fatty liver disease (NAFLD) is the most common chronic liver disorder worldwide, strongly associated with obesity, insulin resistance, and metabolic syndrome. The disease ranges from simple steatosis to nonalcoholic steatohepatitis (NASH), fibrosis, and cirrhosis. This study evaluates clinical, laboratory, and instrumental findings in patients with NAFLD and assesses metabolic risk factors associated with disease severity.

### Keywords

NAFLD, insulin resistance, HOMA-IR, steatosis, metabolic syndrome, fibrosis

### Aim

To evaluate clinical and metabolic characteristics of patients with NAFLD and determine the relationship between insulin resistance and liver damage severity.

### Materials and Methods

A total of **85 patients** with suspected NAFLD were examined. Clinical evaluation, anthropometric measurements (BMI, waist circumference), biochemical tests (ALT, AST, lipid profile, fasting glucose, insulin), and insulin resistance index (HOMA-IR) were assessed. Abdominal ultrasound and transient elastography were used to determine hepatic steatosis and fibrosis.

### Results

NAFLD was confirmed in **78 (91.7%)** patients based on imaging and laboratory findings.

#### Metabolic and clinical findings:

- Overweight or obesity was present in **74.4%** of patients
- Central obesity was detected in **69.8%**
- Type 2 diabetes mellitus was present in **38.6%**

#### Biochemical abnormalities:

- Elevated ALT and AST levels were found in **62.8%** of patients

- Dyslipidemia ( $\uparrow$ TG,  $\downarrow$ HDL) was observed in **66.3%**
- Increased fasting insulin levels were detected in **71.2%**

#### Insulin resistance:

- Elevated HOMA-IR ( $>2.5$ ) was observed in **73.5%** of cases
- Strong correlation between HOMA-IR and hepatic steatosis grade ( $r = 0.62$ ,  $p < 0.05$ )

#### Imaging findings:

- Mild steatosis (S1): **41.0%**
- Moderate steatosis (S2): **36.0%**
- Severe steatosis (S3): **14.7%**

Fibrosis (F2–F3) was detected in **28.4%** of patients using elastography.

### Discussion

The results demonstrate that NAFLD is strongly associated with metabolic syndrome components, particularly insulin resistance and central obesity. The severity of hepatic steatosis correlates significantly with HOMA-IR and dyslipidemia.

Patients with combined obesity and insulin resistance showed more advanced liver damage compared to those without metabolic dysfunction. These findings confirm that NAFLD is not only a liver disease but also a systemic metabolic disorder.

### Conclusion

NAFLD is highly prevalent among patients with metabolic risk factors. Insulin resistance and central obesity are the strongest predictors of disease severity. Early detection using biochemical markers and imaging techniques is essential for preventing progression to fibrosis and cirrhosis.

### References

1. Younossi ZM et al. Global epidemiology of NAFLD. *Hepatology*. 2020.
2. Eslam M, Newsome PN. MAFLD concept and metabolic dysfunction. *J Hepatol*. 2020.
3. Loomba R, Adams LA. Advances in NAFLD diagnosis. *Nat Rev Gastroenterol Hepatol*. 2021.
4. Byrne CD, Targher G. NAFLD as multisystem disease. *J Hepatol*. 2018–2021.
5. Tilg H, Effenberger M. Insulin resistance in NAFLD. *Hepatology*. 2020.
6. Angulo P et al. Natural history of NAFLD. *Gastroenterology*. 2019.
7. European Association for the Study of the Liver (EASL) guidelines. 2021.

8. American Association for the Study of Liver Diseases (AASLD). Practice guidance. 2022–2023.