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Proportion of Non-Alcoholic Fatty Liver Disease (NAFLD) and Its Risk Factors Among Diabetic Patients Attending a Diabetic Clinic at a Tertiary Care Centre in Rishikesh, Uttarakhand: A Cross-Sectional Study: Reg ID: 28

Rohit Deoli, Ajeet Singh Bhadoria, Ravikant, Rohit Gupta, Shikha Thakur, Ravi Kumar
All India Institute of Medical Sciences Rishikesh

CORRESPONDING AUTHOR
Dr Rohit Deoli, All India Institute of Medical Sciences Rishikesh
Email: drohitdeoli1997@gmail.com

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Abstract

Background: Non-Alcoholic Fatty Liver Disease (NAFLD) is the most common chronic liver disease worldwide and is closely linked with Type 2 Diabetes Mellitus (T2DM). Individuals with diabetes are at increased risk of hepatic steatosis, fibrosis, cirrhosis, and hepatocellular carcinoma. Despite the rising burden of metabolic diseases in India, region-specific data from Uttarakhand remain limited, particularly using non-invasive diagnostic modalities such as FibroScan with Controlled Attenuation Parameter (CAP). **Aim:** To estimate the proportion and determine the risk factors of NAFLD among diabetic patients attending a tertiary care centre in Rishikesh, Uttarakhand. **Methods:** A hospital-based cross-sectional study was conducted from December 2024 to May 2025 at All India Institute of Medical Sciences, Rishikesh. A total of 330 T2DM patients aged ≥30 years were enrolled using consecutive sampling. Data were collected through structured interviews, anthropometric assessment, biochemical investigations, and FibroScan. NAFLD was defined as CAP >238 dB/m, and liver fibrosis as liver stiffness measurement (LSM) >7.0 kPa. Statistical analysis was performed using SPSS version 25. Descriptive and inferential statistics, including independent t-test, Mann–Whitney U test, and Chi-square test, were applied. A p-value <0.05 was considered statistically significant. **Results:** The proportion of NAFLD among diabetic patients was 60% (198/330). Participants with NAFLD had significantly higher mean body weight (p=0.001), body mass index (p<0.001), and waist circumference (p<0.001). Lower per capita income (p=0.035), reduced platelet count (p=0.003) were also significantly associated with NAFLD. No significant associations were observed with age, sex, occupation, physical activity, glycaemic control, lipid profile, liver enzyme levels. **Conclusion:** NAFLD is highly prevalent among T2DM patients in this tertiary care setting in Uttarakhand. Obesity, central adiposity, and socioeconomic factors are key determinants. Routine screening using non-invasive tools and early lifestyle interventions are essential to prevent disease progression and related complications.

Keywords

NAFLD, Type 2 Diabetes Mellitus, FibroScan, CAP, Risk Factors.