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RESEARCH ARTICLE

STUDY OF NON-ALCOHOLIC FATTY LIVER DISEASE IN PATIENTS OF HYPOTHYROIDISM IN WESTERN UTTAR PRADESH

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Abstract

Background: Non-alcoholic fatty liver disease (NAFLD) is increasingly recognized as the hepatic manifestation of metabolic dysfunction. Hypothyroidism contributes to dyslipidaemia, insulin resistance, and altered lipid metabolism, thereby increasing the risk of NAFLD. This hospital-based cross-sectional study included 100 adults with hypothyroidism to determine the prevalence of NAFLD and evaluate associated clinical and biochemical factors.

Methods: Participants underwent clinical evaluation, thyroid function tests, liver function tests, lipid profile analysis, and abdominal ultrasonography.

Results: NAFLD was detected in 35% of participants, with Grade 1 fatty liver in 22%, Grade 2 in 11%, and Grade 3 in 2%. Higher TSH levels, dyslipidaemia, and elevated liver enzymes were associated with hepatic steatosis.

Conclusion: Early screening of hypothyroid patients for NAFLD may facilitate timely intervention and reduce long-term hepatic and cardiovascular complications.

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Introduction:-

Non-alcoholic fatty liver disease represents a spectrum of liver disorders ranging from simple steatosis to steatohepatitis, fibrosis, cirrhosis, and hepatocellular carcinoma. Thyroid hormones regulate lipid metabolism and energy homeostasis, and hypothyroidism promotes dyslipidaemia, insulin resistance, and hepatic fat accumulation. Understanding this relationship is important because both hypothyroidism and metabolic disorders are increasingly prevalent in India.

Materials and Methods:-

This observational cross-sectional study was conducted in the Department of General Medicine, Muzaffarnagar Medical College. A total of 100 adult patients with hypothyroidism were enrolled after obtaining written informed consent. Institutional Ethics Committee approval was obtained before commencement of the study. All participants underwent thyroid function testing, liver function testing, lipid profile assessment, and abdominal ultrasonography. Statistical analysis was performed using standard methods, and a p value <0.05 was considered statistically significant.

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Results:-

Most participants were aged 41–60 years, with a slight male predominance. Ultrasonography showed Grade 1 fatty liver in 22%, Grade 2 in 11%, Grade 3 in 2%, while 65% had no fatty liver. Patients with fatty liver had higher TSH levels, adverse lipid profiles, and mildly elevated liver enzymes, supporting an association between worsening thyroid dysfunction and hepatic steatosis.

Discussion:-

The findings support previous studies demonstrating an association between hypothyroidism and NAFLD. Thyroid hormone deficiency alters hepatic lipid metabolism, leading to triglyceride accumulation and fatty liver. Dyslipidaemia and insulin resistance further contribute to disease progression. Routine metabolic assessment and liver ultrasonography should be considered in hypothyroid patients.

Limitations:-

The study was conducted at a single centre with a cross-sectional design, limiting causal inference. Ultrasonography may underestimate mild steatosis compared with advanced imaging or liver biopsy. Larger multicentre prospective studies are required.

Conclusion:-

NAFLD is common among patients with hypothyroidism and is associated with higher TSH levels, dyslipidaemia, and elevated liver enzymes. Early identification and multidisciplinary management may reduce long-term hepatic and cardiovascular complications.