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Thyroid Hormone Variability in Liver Cirrhosis: Its Impact on Disease Severity and Clinical Management—A Cross-sectional Study

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ABSTRACT

Introduction

Liver diseases are increasingly recognized as significant public health concerns in India, prompting investigations into novel approaches for assessing disease severity and prognosis. Recognizing the potential utility of thyroid hormone levels in these assessments, we conducted an observational cross-sectional study at our tertiary care hospital. Our study included 89 patients aged 12 years and above, admitted to medicine wards with ultrasound-diagnosed liver cirrhosis, excluding pregnant women and those on thyroid-altering medications.

Results

Our findings revealed a male-to-female ratio of 4.23:1, with the majority of patients falling within the 40–60 age-group, averaging 46.93 years. Notably, 87.6% of patients exhibited thyroid abnormalities, primarily low free T3 (FT3) syndrome and subclinical hypothyroidism. Classifying patients according to Child–Pugh (CP) score, 2.2% were CP class A, 22.5% were CP class B, and the remaining 75.3% were CP class C. Across all CP classes, low FT3 syndrome was prevalent, particularly in CP class C. Correlations between thyroid hormone levels and liver disease severity, assessed via CP and model for end-stage liver disease (MELD) scoring systems, were observed. Specifically, FT3 levels demonstrated a negative correlation with liver disease severity (p = 0.001), while

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no significant correlations were found for free T4 (FT4) and thyroid-stimulating hormone (TSH) levels. Based on our findings, we recommend routine thyroid function testing for all liver cirrhosis patients, irrespective of disease severity, to facilitate early detection and intervention. However, our study had limitations, including a small sample size and a precision error of 10% due to resource constraints for thyroid function testing. Moreover, reliance solely on ultrasound for liver cirrhosis diagnosis may lead to missed diagnoses, highlighting the need for complementary noninvasive tests such as FibroScan and aspartate aminotransferase to platelet ratio index (APRI) scores.

Conclusion

Our study underscores the importance of considering thyroid function in the management of liver cirrhosis patients and provides valuable insights for enhancing clinical practice in this context.

Keywords: Thyroid, Liver cirrhosis, FibroScan, APRI.