Comparison Of Quantification Of Hepatic Steatosis Between Liver MRI And Biopsy In Obese Patients In Pre-transplant Setting

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INTRODUCTION

- Liver biopsy is a gold standard for assessing steatosis in non-alcoholic fatty liver disease (NAFLD). However, it carries risks including bleeding, discomfort, sampling error bias, inter-, and intra-observer variability.
- Magnetic resonance imaging with proton density fat-fraction (MRI-PDFF) has been explored to quantify steatosis to characterize NAFLD with accuracy and reproducibility.
- Our study assesses if MRI quantification of hepatic steatosis is consistent with that performed by liver biopsy for obese patients.

METHODS

- In this study, a bivariate correlation was performed to calculate a Pearson's correlation coefficient for patients with BMI≥30 who underwent screening with liver biopsy and liver MRI to quantify steatosis prior to living donation hepatectomy at Cleveland Clinic between 2019 and 2022.
- We excluded non-obese patients as well as patients who had contraindications to MRI, high alcohol use, pre-existing liver disease, or bleeding disorders.

BASELINE CHARACTERISTICS	n (%)
Sex	
Female	79 (51.6)
Male	74 (48.4)
Race/Ethnicity	
Caucasian	136 (88.9)
African American	4 (2.6)
Hispanic	12 (7.8)
Other	23 (15.0)
OBESITY CLASSIFICATION	
Class I (30-34.9)	40 (26.1)
Class II (35-39.9)	8 (5.2)
Class III (≥40)	2 (1.3)

Table 1. Baseline characteristics of potential liver donors prior to hepatectomy

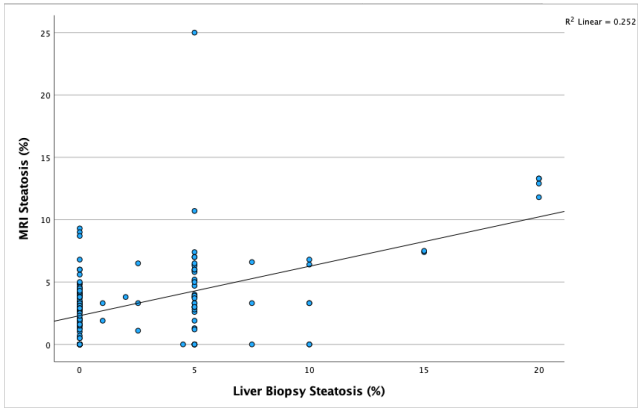

Figure 1: Correlation between liver biopsy steatosis and MRI steatosis.

RESULTS

- We ultimately included 99 patients in our study (**Table 1**).
- Patients were predominantly female, Caucasians, and with Class 1 Obesity.
- Mean MRI steatosis was 3.48 [2.53] while mean biopsy steatosis was 1.79 [3.45].
- Bivariate correlation analysis showed liver MRI and biopsy steatosis quantification to be moderately positively correlated, $r(97) = 0.46$, $p < 0.0001$

DISCUSSION

- Our data highlight that liver MRI quantification of hepatic steatosis is consistent with biopsy for obese patients.
- These findings indicate that a liver MRI could be an accurate alternative for potential living liver donors.
- Further work is needed to evaluate if a liver MRI is a suitable alternative for individuals across different classes of obesity.