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**EXTERNAL VALIDATION OF THE USE
OF TC-99M MEBROFENIN
HEPATOBIILIARY SCINTIGRAPHY TO
ASSESS FUTURE LIVER REMNANT
FUNCTION BEFORE MAJOR LIVER
SURGERY**

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Purpose: Accurate assessment of future remnant liver function (FRL-F) is paramount before major liver resection to avoid post-hepatectomy liver failure (PHLF), which remain the main perioperative cause of mortality. This study aims to analyse FRL-F using 99mTc-mebrofenin hepatobiliary scintigraphy before major liver surgery.

Methods: All consecutive patients who underwent major liver resection between February 2018 and December 2020 and who had a preoperative 99mTc-mebrofenin hepatobiliary scintigraphy to assess FRL-F were included. FRL-V

was expressed as percentage of total liver volume and assessed using preoperative computed tomography (CT). Receiver operating characteristic (ROC) curve analysis was performed to evaluate both methods in predicting PHLF.

Results: A total of 29 patients were included, with a mean age of 61 years, a mean of BMI 26 kg/m² and 62% (n=18) were men. PHLF occurred in 6 patients (21%). Scintigraphy showed significant ability to predict PHLF (AUC = 0.7, CI: 0.4-0.9), with cut-off value of 2.62 %/min/m² showing a true positive (sensitivity) of 0.18, a specificity of 1.00 (false positive rate of 0), and a positive predictive value of 1.00. CT and FRL-V had no capacity to predict the occurrence of PHLF (AUC=0.5, CI: 0.2-0.8).

Conclusion: Preoperative ^{99m}Tc-mebrofenin hepatobiliary scintigraphy and FRL-F demonstrated better sensitivity, specificity, positive and negative predictive value compared to CT and FRL-V for PHLF prediction. Therefore, where available, scintigraphy should be used systematically preoperatively before major liver surgery to assess FRL-F.