

# **Role of hepatobiliary scintigraphy to evaluate the future remnant in ALPPS procedures: a multicentric study from the international ALPPS Registry.**

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## **Background:**

In the last decade portal vein embolization and two-stage-hepatectomy emerged as the best surgical option for patients with initially unresectable bilobar tumors allowing liver regeneration and decreasing post-hepatectomy liver failure (PHLF). More recently, ALPPS procedure showed a faster hypertrophy of the future liver remnant (FLR) following the first stage allowing rapid regeneration in 1 week. Usually, the FLR assessed by a volumetric CT is thought to be adequate if the ratio between volume and patient weight is  $> 0.5$  or  $> 30\text{-}40\%$  of the total liver volume. However, since the liver volume does not always correlate with the function, the risk of morbidity and mortality following ALPPS cannot completely be avoided. A new method, the hepatobiliary scintigraphy (HBS) using the  $^{99\text{m}}\text{Tc}$ -mebrofenin uptakes has been recommended to assess the function of the FLR in extended hepatectomy to reduce the risks of PHLF. Upon preliminary data, a clearance below  $3\%\text{min}/\text{m}^2$  of FRLV is an independent risk factor for development of liver failure.

## **Aims:**

We want to evaluate the patients included in the International ALPPS Registry whose remnant liver function has been assessed also with the HBS. The increase in volume of the FLR will be compared to the preoperative HBS. Results will be correlated with the regeneration rate and the post-operative liver function, analyzing their predictive power of morbidity. All Patients selected for an ALPPS procedure with combined CT volumetry and HBS assessment will be retrieved from the International ALPPS Registry. Relationships between liver regeneration rates and liver function will be evaluated as well as the predictive factors of morbidity. All the data will be recorded in a prospective kept database and analyzed using IBM SPSS Statistics for Mac. This study could definitely demonstrate that, despite a faster FLR regeneration, the acquired volume does not always correlates with its function.