

Prevention of Post-hepatectomy Liver Failure: Liver Volume and Quality, Logistics and Plasmapheresis

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Post-hepatectomy liver failure (PHLF) simply indicates too much resection of the sick liver. Indocyanine green test is a useful method to evaluate hepatic functional reserve. ICG K fraction of the remnant liver proportion (ICGKrem) is a reliable parameter to predict risk of PHLF, but its cutoff is known to be around 0.05. We intended to establish a reliable cutoff value of ICGKrem and to validate its predictive power as well as to assess the significance of standardized ICGKrem by using standard liver volume (SLV-corrected ICGKrem) for patients with huge HCC. ICGKrem appears to be a reliable parameter reflecting the risk of major hepatic resection. Our results suggested that ICGKrem cut-off value for safe hepatectomy would be 0.04 for normal livers, but it is reasonable to set at 0.05 for cirrhotic livers, which is the traditionally suggested value. SLV-corrected ICGKrem appears to be useful parameter for patients with large liver mass or shrunken liver. Preoperative portal vein embolization (PVE) induces shrinkage of the embolized lobe and compensatory regeneration in the non-embolized lobe, but does not always induce sufficient regeneration of the future liver remnant liver (FLR) due to various causes. Its main underlying causes include liver cirrhosis that innately limits regenerative capability and incomplete blockade of portal vein (PV) flow due to minute residual flow or intrahepatic shunting/collateral formation. In practice, several methods of PVE have been introduced so far, PVE-induced atrophy-hypertrophy is not so evident unless all minute PV branches are completely occluded. Especially regarding liver cirrhosis, the response to PVE is often suboptimal. To facilitate FLR regeneration, sequential PVE-hepatic vein embolization (HVE) was developed. Hemiliver damage due to sequential PVE-HVE was well tolerated. Most patients with limited FLR regeneration after PVE demonstrated further increases in FRL volume after receiving sequential PVE-HVE. Once

PHLF happens, prompt best supportive care should be followed. Plasmapheresis is often useful to help recovery of failing liver, which was proven through the accumulated experience of early allograft dysfunction following liver transplantation.