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The Impact Of Portal Flow Modulation For Prevention Post Hepatectomy Liver Failure By Splenic Artery Ligation: A Randomized Controlled Trial

Witcha VIPUDHAMORN, Sunhawit JUNRUNGSEE*, Worakitti LAPISAREPUN, Wasana KO-IAM, Trichak SANDHU, Anon CHOTIROSNIRAMIT

HBP Surgery Department, Chiangmai University, THAILAND

Background : In liver transplant surgery, there were many patients develop portal hypertensions after surgery which could be explained from the imbalance of the donors and recipients regarding to blood volume and blood flow rates that lead to liver failure. This randomized control trial study was performed to evaluate the effectiveness and safety of splenic artery ligation (SAL) for reducing portal vein (PV) pressure to decrease morbidity and mortality after hepatectomy

Methods : Elective hepatectomy patients were enrolled and randomized into "SAL if PV pressure \geq 15 mmHg" or "non-SAL if portal vein pressure \geq 15 mmHg". The total amount of blood loss, rate of post hepatectomy liver failure (PHLF) and postoperative complications were compared.

Results : Between May 2019, and November 2022, we enrolled 90 patients who schedule for open hepatectomy and randomly assigned them to perform SAL or not. We noticed statistically significant difference between 3 groups in PHLF rate. The non-SAL group had the most patient to develop liver failure grade B and C (63.16%). While comparing between SAL and non-SAL group, its still shown SAL group was decrease rate of post hepatectomy liver failure, significantly [26.67% VS 63.16%; $p=0.045$]. In SAL group, there was no one develop splenic infarction or splenic abscess.

Conclusions : The occlusion of the splenic artery causes a significant reduction in PHLF and 30-days mortality rate. Moreover, there was no serious complication after splenic artery ligation. We can conclude that splenic artery ligation is the safe operation to reduce post morbidity and mortality after hepatectomy in portal hypertension patients.

Corresponding Author : **Sunhawit JUNRUNGSEE** (sunhawit.j@cmu.ac.th)