

## **Hype or Hope? Pharmacological Portal Inflow Modulation including Splanchnic Vasoconstrictors**

Dong-Sik Kim, MD, PhD.

'Posthepatectomy Liver Failure (PHLF)' is one of the most significant unmet need in the field of liver surgery. Although there may be many potential risk factors underlying in individual cases, fundamental etiology leading to clinically evident PHLF is considered to be small remnant liver failing to meet metabolic demand of patients after surgery, which can be defined as 'Small-for-Size Syndrome (SFSS)' or 'Small-for-Flow Syndrome (SFFS)'.<sup>1</sup> The same concept can be extended to transplant settings including living donor liver transplantation or deceased donor liver transplantation using partial graft.

Although each terminology has a slightly different view on pathophysiology, basically excessively high portal pressure and flow delivered to small remnant liver and subsequent damage to sinusoidal endothelial system by shear stress is considered as a key feature.

To prevent or manage PHLF or SFSS, several procedures such as portal vein banding, splenic artery embolization, mesocaval or portocaval shunts, and splenectomy have been introduced.<sup>2, 3</sup> However, these procedures are invasive and often times irreversible. When the liver requires more portal flow after successful regeneration, another invasive procedure may be required to reverse relative portal insufficiency. Complications such as prolonged shunts or post-splenectomy sepsis after those invasive procedures have also been reported.<sup>4</sup>

If effective agents can be applied instead of invasive procedures to reduce the risk of PHLF or SFSS, the risk of potential complications may be avoided or at least minimized, and treatment itself can be readily reversible depending on the patient's condition.

In this session, potential candidates of medical treatment for SFSS will be reviewed using data from published and on-going studies.

### REFERENCES

1. Golriz M, Majlesara A, El Sakka S, et al. Small for Size and Flow (SFSS) syndrome: An alternative description for posthepatectomy liver failure. *Clin*

*Res Hepatol Gastroenterol* 2016; 40(3):267-75.

2. Ikegami T, Shimada M, Imura S, et al. Current concept of small-for-size grafts in living donor liver transplantation. *Surg Today* 2008; 38(11):971-82.
3. Gruttadauria S, Pagano D, Luca A, et al. Small-for-size syndrome in adult-to-adult living-related liver transplantation. *World J Gastroenterol* 2010; 16(40):5011-5.
4. Gonzalez HD, Liu ZW, Cashman S, et al. Small for size syndrome following living donor and split liver transplantation. *World J Gastrointest Surg* 2010; 2(12):389-94.