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Successful modulation of portal inflow by somatostatin in a porcine model of small-for-size syndrome

Kayvan Mohkam, MD, Benjamin Darnis, MD, Zoé Schmitt, MD, Serge Duperret, MD, PhD, Christian Ducerf, MD, PhD, Jean-Yves Mabrut, MD, PhD

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Abstract

Background

Somatostatin may prevent the small-for-size syndrome (SFSS) in subjects undergoing extended hepatectomy by decreasing portal pressure.

Methods

Twenty pigs underwent 70% hepatectomy (H70 group, n=7), 90% hepatectomy (H90 group, n=7), or sham laparotomy (control group, n=6). Splanchnic hemodynamics were measured before and after an intraoperative infusion of somatostatin.

Results

The portal vein flow normalized to liver weight (PVF/LW) increased in both H70 and H90 groups (from 125±42 to 342±82 ml/min/100g, p=0.031 and from 140±46 to 530±241, p=0.016, respectively). The hepatic venous pressure gradient (HVPG) increased in the H90 group only (from 5.5±5.8 to 13±4.9 mmHg, p=0.004). Somatostatin decreased PVF/LW in both H70 and H90 groups (from 408±224 to 360±227 ml/min/100g, p=0.031 and from 560±190 to 466±189 ml/min/100g, p=0.016), and restored a normal HVPG in the H90 group (from 14.3±4.8 to 7.7±6.1 mmHg, p=0.047).

Conclusions

Somatostatin restores a normal HVPG in the setting of SFSS and can be considered as an effective pharmaceutical modality of portal inflow modulation after extended hepatectomy.