Abstract CODE : A193

TYPE : ORAL PRESENTATION

CATEGORY : VASCULAR INTERVENTION

TITLE

Comparison of Quick Soluble Gelatin Sponge Microspheres and Conventional Gelatin Sponge Microspheres in Transarterial Embolization of Renal Bleeding: A Swine Model Study

BACKGROUND

Gelatin sponge particles have been widely used for transarterial embolization (TAE) since the 1970s. While serving as a temporary embolic agent that spontaneously dissolves within days, it often leads to irreversible ischemic damage to tissues or organs within the embolized artery's territory. Quick soluble gelatin sponge microspheres (qsGSM) dissolve more rapidly than conventional gelatin sponge microspheres (cGSM), with their dissolution time adjustable from several minutes to days. This study compares the angiographic features and histopathological renal parenchymal ischemia between TAE using cGSM and qsGSM in a swine renal bleeding model.

METHODS

Renal bleeding was induced in 10 swine by puncturing the interlobar artery in the lower pole of the right kidneys under ultrasonographic guidance. TAE was performed using qsGSM (100-300 □m, n=5) or cGSM (100-300 □m, n=5). The entire lower pole of the right kidney was embolized until stasis. Angiograms were obtained before renal bleeding, immediately after bleeding, immediately after embolization, 10, 30, 60, 90 minutes, 1 day, and 7 days after embolization. Histopathologic evaluation was conducted for ischemic damage and the presence of intravascular residual embolic materials.

RESULT

Hemostasis was achieved in both groups. Sequential angiography showed recanalization of embolized renal artery in qsGSM group. In contrast, cGSM group showed limited recanalization. Histopathologic result shows significantly lower areas of infarction in qsGSM(11.29%) group compared to cGSM(95.82%) group. Embolic materials were observed in renal artery, interlobar artery and arcuate artery in majority of specimens of cGSM group (n=5). In qsGSM group, 2 kidneys showed no visible residual embolic material and 3 kidneys showed residual embolic material only in arcuate artery.

CONCLUSIONS

TAE with qsGSM successfully achieved hemostasis with significantly less renal infarction compared to TAE with cGSM. Further studies are needed to determine the optimal size and dissolving time of qsGSM.

AUTHOR

Chong-ho Lee

CO-AUTHOR

Associate Professor Jae Hwan Lee
Professor Chang Jin Yoon