Comparison of the efficacy of SEMS with angioembolization for bleeding control after ERCP

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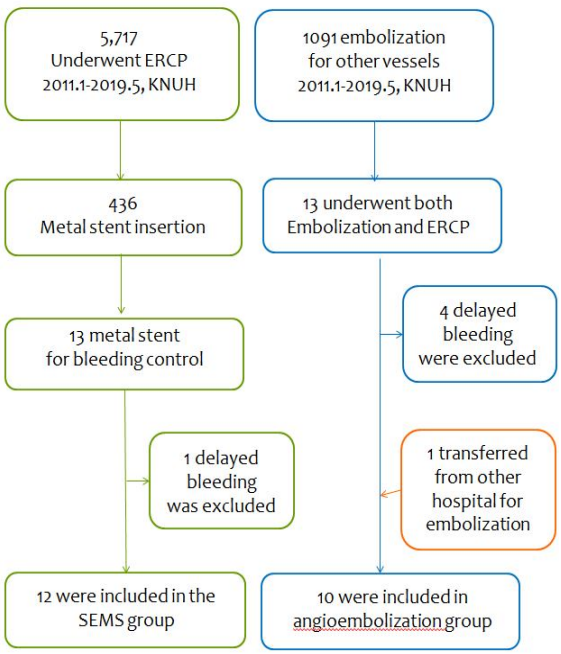
Background/Aims: As a common & major complication, bleeding after ERCP can be managed by standard endoscopic managements, such as EST(endoscopic sphincterectomy), EPLBD(endoscopic papillary large ballon dilatation), epinephrine injection, hemocoagulation, ballon tamponade. For post ERCP bleeding refractory to standard endoscopic managements, temporary SEMS(self-expandable metal stent) is preferred to angioembolization(AE), which is conventionally used. As a mechanical tamponade, SEMS is easy to remove, so it can reduce complication and avoid additional intervention. Therefore, we aimed to compare the efficacy of SEMS with AE for refractory post ERCP bleeding.

Methods: About 5,717 patients who underwent bleeding during the procedure or immediately after ERCP at KNUH in 2011.1-2019.5 were reviewed retrospectively. ERCP related bleeding, not controlled with standard endoscopic modalities was 21 cases (0.36%) and there was 1 case that was transferred from other hospital for AE. (Fig.1) Patients were classified into the SEMS group (n=12) or AE group (n=10). The median duration of follow-up was 398±698 days (2~2702). In this study, bleeding was related mortality, and the efficacy of SEMS on delayed post-ERCP bleeding was not included. We evaluated the hemoglobin level, blood transfusion, ERCP procedure time, in-hospital stay in both groups.

Results: When compared to clinical success (p=0.65), hemostasis success was no significant difference between SEMS group (83.3%) and AE group (90%). (Table.1) However, change in Hb level (p=0.035) was lower in SEMS group (2.7±1.5g/dL) than AE group (4.7±2.5g/dL). Pack-RBC transfusion (p=0.008) was lower in SEMS group (0±1.0(0-3) pints) than AE group (2.5±2.4(0-7) pints). (Table.2) In other words, the amount of bleeding was lower in SEMS group, and this result was statistically reliable. There was no statistical significance in ERCP procedure time (p=0.869), in-hospital stay (p=0.985), bleeding related mortality (p=0.262).

Conclusions: Temporary SEMS could be considered as the first treatment modality for hemostasis of ERCP related bleeding, when bleeding is not controlled with standard endoscopic modalilties.

[Fig.1] Flow schematic of the study



[Table.1] Clinical success (p=0.65)

	SEMS	Angioembolization
Hemostasis success	10 (83.8%)	9 (90%)
Hemostasis failed	2 (16.7%)	1 (10%)

[Table.2] Procedure time, Bleeding, In-hospital stay, Mortality in SEMS and AE group

	SEMS (n=12)	Angioembolization (n=10)	P-value
ERCP procedure time	23.9 ± 8.0 min	22.4 ± 8.0 min	0.869
Post-ERCP pancreatitis	2 (16.7%) cases	1 (10%) case	0.650
Change in Hb level	2.7 ±1.5 g/dL	4.7 ±2.5 g/dL	0.035
Pack-RBC transfusion (median)	0±1.0 (0-3) pints	2.5±2.4 (0-7) pints	0.008
In-Hospital stay	12±5.9 (6-23) days	9.5±7.5 (7-27) days	0.985
Bleeding related mortality	0 (0%)	1 (10.0%)	0.262
Bleeding during ERCP			0.632
Post-ES bleeding	6 (50%)	5(50%)	
Post-EPLBD bleeding	5 (41.7%)	5(50%)	
Other	1 (8.3%)	0 (0%)	