Comparison of Endoscopic Retrograde Stent Placement via Trans-papillar versus Supra-papillar Method for Malignant Biliary Obstruction

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Disclosures for all authors

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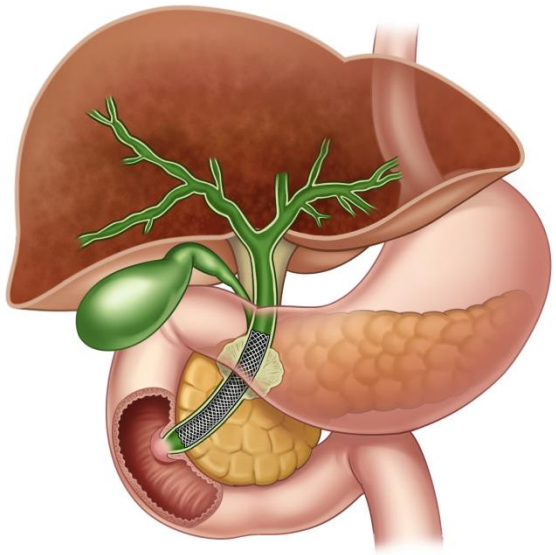
INTRODUCTION

- One of the main causes of the stent dysfunction in malignant biliary obstruction were food reflux and migration, had reported 15.4 % and 7.7 %, respectively. Recently, various types of anti-reflux metal stents have been developed, but there is insufficient evidence to show good performance compared with uncovered metal stents.

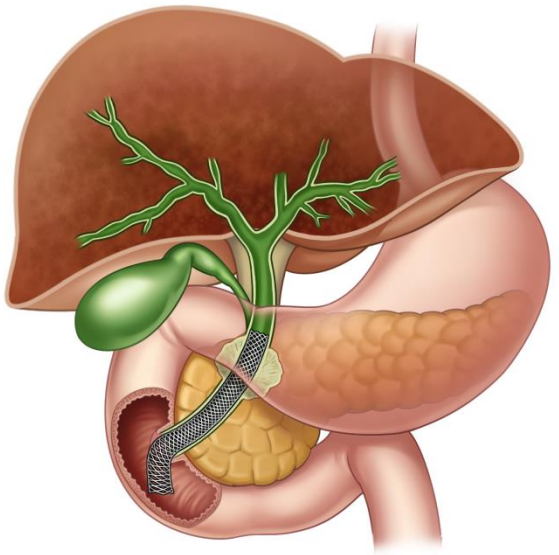
- **AIMS:** We evaluated the differences in treatment outcome of metal stent insertion across the major papilla (trans-papillar method) versus above the major papillar (supra-papillar method) among Korean patients with malignant obstruction on the common bile duct level. This will help to elongate the patency of the stent for palliative treatment in malignant biliary obstruction of the common bile duct.

METHODS

- A total of 97 patients with malignant biliary obstruction at the common bile duct who received metallic stent placement through endoscopic retrograde biliary drainage from August 2017 to September 2019 at the Asan Medical Center were included in this study. Patients with malignant biliary obstruction, including the hepatic hilum, were excluded from this study.
- 43 patients and 54 patients were treated with stent insertion via supra-papillar (Group 1) and trans-papillar method (Group 2), respectively. Stent patency and causes of stent dysfunction were assessed.



Supra-papillar method



Trans-papillar method

RESULTS

- A total of 43 patients developed stent dysfunctions during the survival time after the procedure. As the following intervention, 16 patients underwent additional stent insertion in stent, 17 patients underwent stent replacement, 7 patients underwent percutaneous biliary drainage, and the other 3 patients had poor systemic condition so did not receive additional intervention.
- The average duration of stent patency in group 1 was significantly longer than in group 2 (205.5 days ± 163.0 days,114.7 days ± 113.6 days, respectively, $p = 0.003$; Table 1). Cumulative hazard of stent dysfunction was a significantly lower in group 1 than that in group 2 ($p = 0.013$, Figure 1). As the Cox proportional risk analysis of possible variables associated with stent dysfunction showed, stent dysfunction occurred more frequently only in the case where the metal stent was inserted via trans-papillar method compared with that via supra-papillar method. (HR = 2.18, $p = 0.038$; Figure 2).
- Survival analysis also showed no significant differences between the two groups ($p = 0.3$, Figure 3).
- Compared with Group 2, tumor ingrowth was significantly frequently observed, and distal stent migration was less frequently observed (respectively, $p = 0.002$, $p = 0.001$, Table 1).

Table 1. Correlation of the Outcomes

	Supra-papillar method (n = 43)	Trans-papillar method (n = 54)	P Value
Patency	205.5 d ± 163.0	114.7 d ± 113.6	** 0.003
Non-occlusion at 9 months	15 (34.9%)	8(14.0 %)	** 0.027
Overall survival	287.5 d ± 193.3	237.3 d ± 220.4	0.243
Stent dysfunction	18 (41.9%)	25 (46.3%)	0.298
Distal migration	1 (0.1%)	14 (56.0%)	** 0.001
Food reflux	1 (0.1%)	4 (16.0%)	0.292
Sludge/stone	1 (0.1%)	2 (8.0%)	0.756
Tumor Ingrowth	11 (61.1%)	4 (16.0%)	** 0.002
Tumor Overgrowth	4 (22.2%)	2 (8.0%)	0.184

* The rate of each cause is divided with total number of stent dysfunction.

Figure 1. Cumulative stent dysfunction ratio among the method

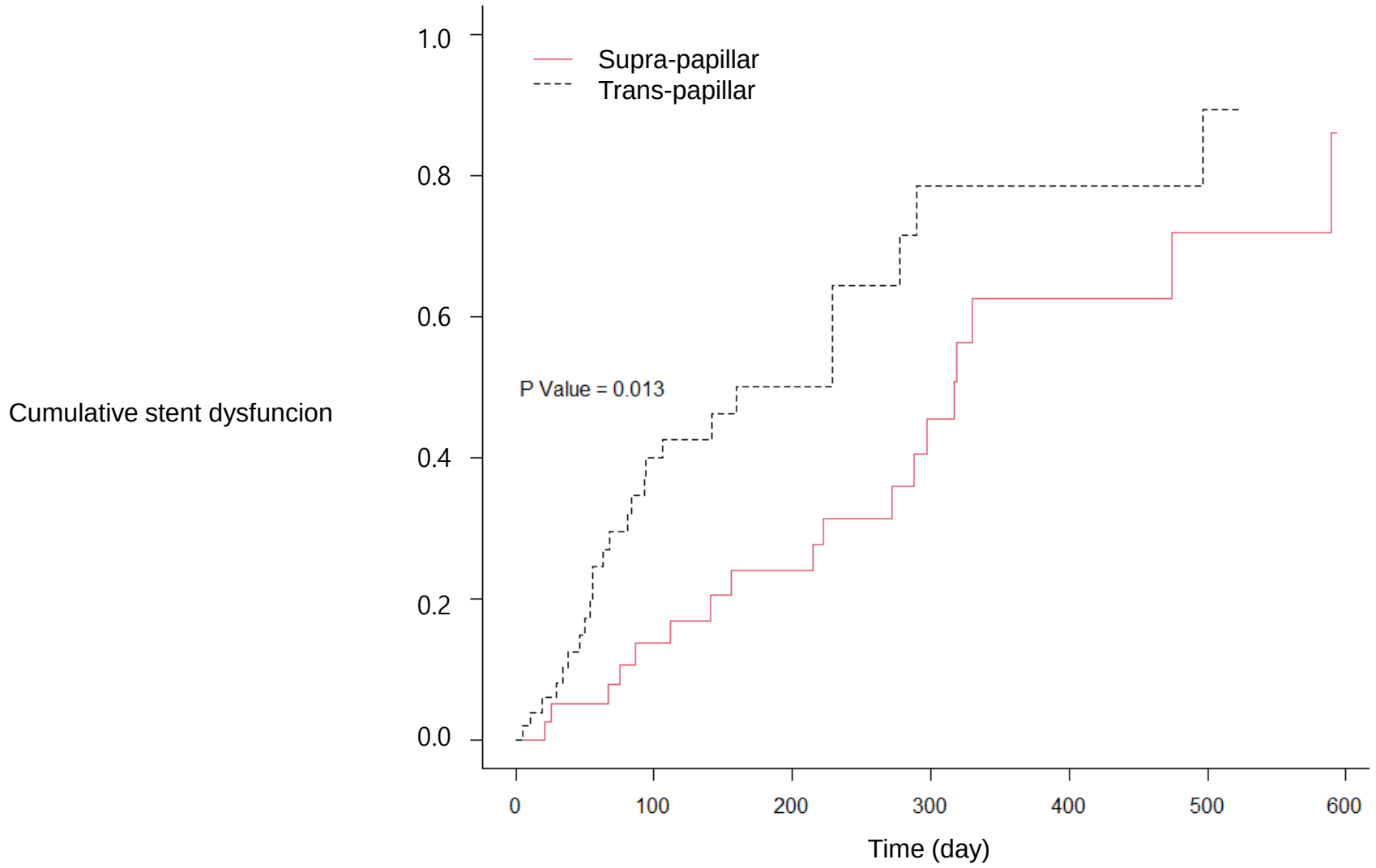


Figure 2. Risk factors associated with stent dysfunction

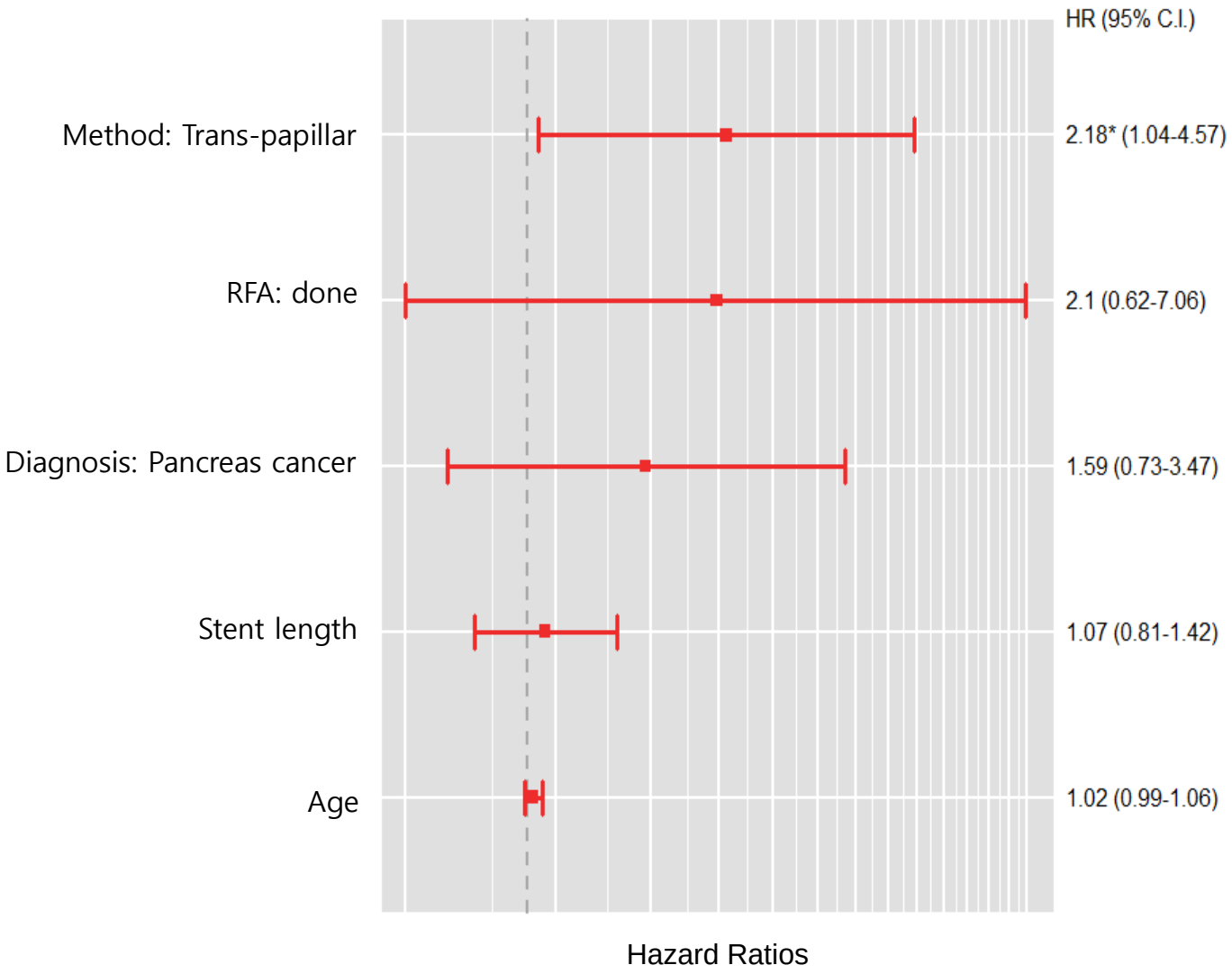
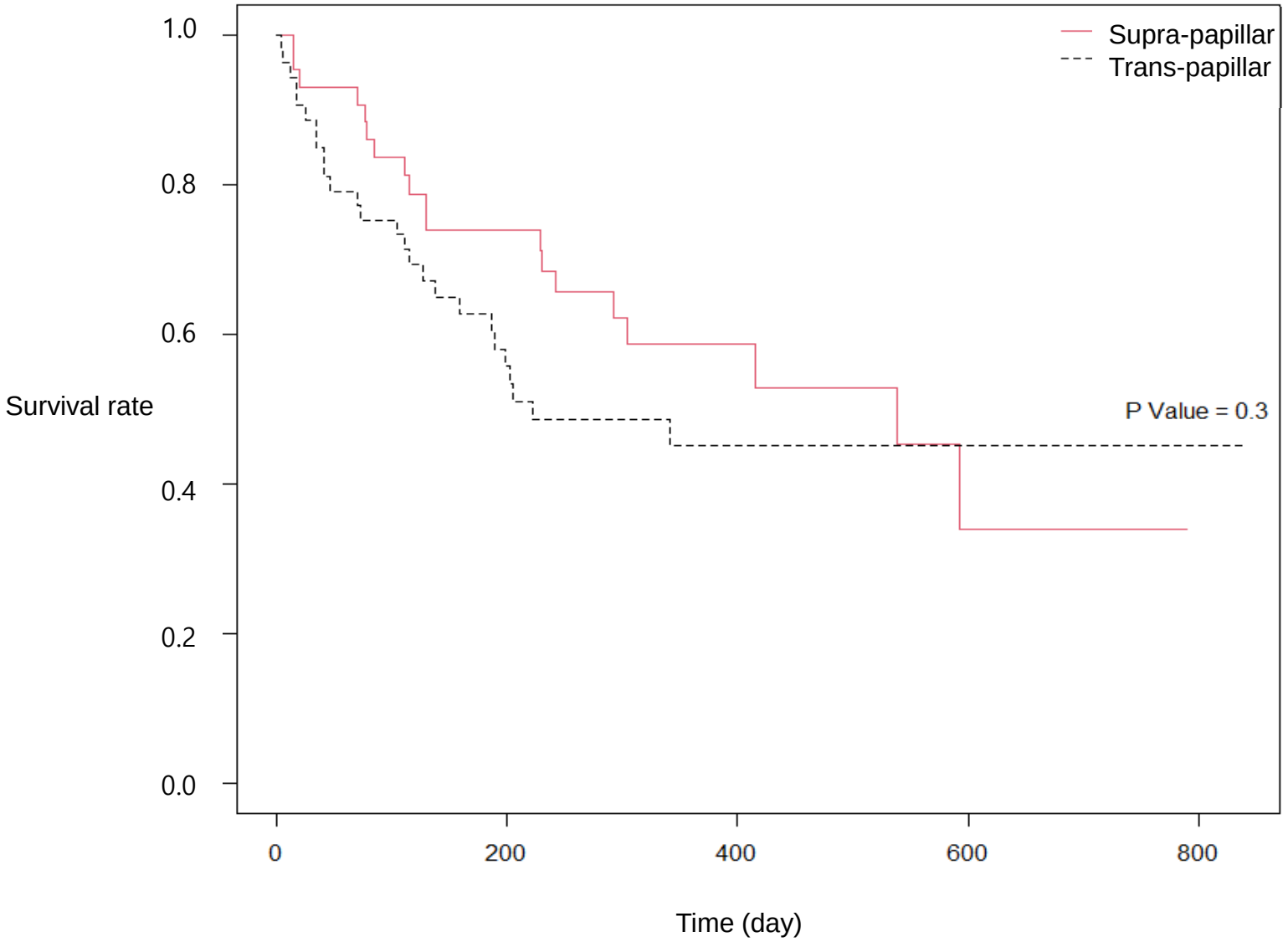


Figure 3. Survival rate among the method



CONCLUSION

- Endoscopic retrograde stent placement via supra-papillar method could achieve longer stent patency and a lower stent dysfunction rate compared with trans-papillar method. For patients with malignant biliary obstruction on the common bile duct level, supra-papillar method should be considered.