Prevention of bleeding after endoscopic submucosal dissection for gastric neoplasms using polyglycolic acid sheets and fibrin glue.

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Abstract:

Introduction: For bleeding after endoscopic submucosal dissection (ESD) for gastric neoplasms, no preventive method has been established other than preventive coagulation of visible vessels on the artificial ulcer after ESD or the usage of proton pump inhibitors. We have reported that the endoscopic tissue shielding method with polyglycolic acid (PGA) sheets and fibrin glue can reduce the risk of post-ESD bleeding. Aims & Methods: The aim of this study is to evaluate the efficacy of PGA sheets and fibrin glue for preventing bleeding after gastric ESD after accumulating more cases. This is a non-randomized historical controlled study. We defined high-risk patients for post-ESD bleeding as follows: 1) those who took antithrombotic drugs regularly; or 2) those expected to undergo large mucosal resection (>=40mm). We enrolled patients scheduled to undergo gastric ESD and had above-mentioned risk factors from July 2013 as the study group (Group A). Immediately after ESD we placed PGA sheets on the mucosal defect and fixed them with fibrin glue in the study group. We extracted high-risk patients from those who had undergone gastric ESD at our institution before the enrollment of the first study patient, and defined the group as the historical control group (Group B). The post-ESD bleeding rate was the primary endpoint in comparative analysis. Results: From July 2013 to October 2014, 98 ESD-induced ulcers in 91 high-risk patients were enrolled in Group A. In Group B, 91 ESD-induced ulcers in 84 consecutive patients were extracted between January 2012 and July 2013. There was a significant difference in antithrombotic drugs use (A: 62 lesions, 63.3%, B: 44, 48.4%; P = 0.039), but the other baseline characteristics

were not significantly different between the two groups: sex (A: male 86/female 12, B: male 73/female 18; P = 0.156); age (A: 71.8+/-8.2 yrs, B: 73.3+/-7.9 yrs; P = 0.229); Heparin bridging therapy (A: 18 lesions, 18.4%, B: 10, 11.0%; P = 0.151); and the diameter of resected specimens (A: 43.7+/-16.1 mm, B: 48.1+/-19.7 mm; P = 0.094). Perforation did not occur in either group. Post-ESD bleeding occurred in 7.1% of the study group (7 lesions), and 17.6% of the historical control group (16 lesions). There was a significant difference in the post-ESD bleeding rate between the two groups (P = 0.027). Multivariate logistic regression analysis also confirmed that applying PGA sheets and fibrin glue was an independent significant factor for decreasing the risk of post-ESD bleeding (Odds Ratio, 0.33; 95% CI: 0.11-0.89, P = 0.029). The mean procedural time for applying PGA sheets and fibrin glue was 20.0+/-9.1 min. Conclusion: Even after accumulating more cases, this study all the same implied that the endoscopic tissue shielding method with PGA sheets and fibrin glue might be promising for the prevention of post-ESD bleeding.