Laparotomy for Traumatic Splenic Injury: Should we Increase our Efforts to Preserve the Spleen?

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Background: In trauma laparotomy the spleen is removed very liberally, and often little effort is made for splenic preservation.

Aims: The aim of this study was to assess the effect of surgical management (splenic repair vs. splenectomy) on outcomes in patients undergoing trauma laparotomy.

Methods: This is a trauma registry (TQIP) study (2013–2019), including adult patients with severe splenic injuries (grades III-V) undergoing trauma laparotomy. Characteristics and outcomes of patients who underwent splenic repair vs. splenectomy within 6 hours of admission were compared using different statistical approaches, i.e. 1:1 exact matching with consecutive conditional logistic regression analysis as primary analysis, multivariable logistic regression, propensity score matching and inverse-probability weighting as sensitivity analyses. The primary outcome was in-hospital mortality.

Results: A total of 11,247 patients with a severe splenic injury undergoing trauma laparotomy within 6 hours of admission were identified. Of these, 10,820 (96.2%) patients underwent splenectomy and 427 (3.8%) patients splenic repair within 6 hours of admission. Among patients who underwent an initial splenic salvage procedure, 23 (5.3%) patients underwent a splenectomy during the subsequent hospital stay. 400 patients with splenic preservation, were matched with 400 patients who underwent splenectomy (matched for age, sex, hypotension, trauma mechanism as well as AIS spleen grades 3,4,5 and AIS groups (AIS 0-2, AIS 3, AIS 4-5) for head, face, neck, thorax, spine, and lower & upper extremity). The mortality was significantly lower in the group of patients with splenic repair (6.5% vs 12.8%, p=0.002). The mortality benefit was subsequently verified by conditional regression analysis (aOR 0.4, CI 95% 0.2; 0.9). Multivariable logistic regression, propensity score matching, and inverse-probability weighting confirmed the lower mortality in the splenic repair group.

Conclusion: In trauma laparotomy splenic repair was independently associated with lower mortality compared with splenectomy. Splenectomy was required in approximately 5% of the patients after initial splenic repair. The findings provide evidence that efforts for spleen preservation in trauma laparotomy should be considered in selected cases.