

## **Propensity Score Analysis of an Enhanced Recovery Programme in Upper Gastrointestinal Cancer Surgery**

Karran A(1), Wheat J(1), Chan D(1), Blake P(1), Barlow R(2), Lewis WG(3). *World J Surg.* 2016 Jul;40(7):1645-54. doi: 10.1007/s00268-016-3473-6.

Author information:

(1)Departments of Surgery, University Hospital of Wales, Heath Park, Cardiff, CF14 4XW, UK. (2)Departments of Dietetics, University Hospital of Wales, Cardiff, CF14 4XW, UK. (3)Departments of Surgery, University Hospital of Wales, Heath Park, Cardiff, CF14 4XW, UK. wyn.lewis4@wales.nhs.uk.

**INTRODUCTION:** The aim of this study was to examine the influence of an enhanced recovery programme (ERP) on outcomes of upper gastrointestinal (UGI) cancer surgery by means of propensity score-matched analysis.

**METHODS:** Three hundred consecutive patients diagnosed with UGI cancer were studied prospectively before and after the introduction of an ERP. Multiple regression models, including propensity scores, were developed to assess confounding variables associated with undergoing surgery, and the risk adjusted association between treatment and length of hospital stay (LOHS).

**RESULTS:** After regression for confounding factors, a cohort of 252 patients was available of whom 160 received ERP [median age 66 years (IQR 58-73), 119 male, 81 oesophageal, 79 gastric cancer] and 92 control [66 years (IQR 58-74), 74 male, 58 oesophageal, 34 gastric cancer]. ERP operative morbidity (Clavien-Dindo  $\geq 3$ ) and mortality were 13.8 and 3.1 % compared with 17.4 (p = 0.449) and 2.2 % (p = 0.658) in controls. Median ERP critical care and total LOS were 1 (IQR 0-1) and 13 (IQR 10-17) days, compared with 1 (IQR 1-2, p = 0.009) and 16 (IQR 13-26, p < 0.001) days. Multivariable analysis revealed ERP (HR 1.477, 95 % CI 1.084-2.013, p = 0.013), tumour location (HR 2.420, 95 % CI 1.624-3.606, p < 0.001), operative procedure (HR 1.143, 95 % CI 1.032-1.265, p = 0.010), and operative morbidity (HR 0.277, 95 % CI 0.179-0.429, p < 0.001) to be associated with LOHS.

CONCLUSION: An ERP in UGI cancer surgery was feasible, safe, and effective.