Predicting outcomes following gastrostomy insertion using the Sheffield gastrostomy score: a prospectively devised scoring system with a validation cohort

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Several scoring systems are used in the field of gastroenterology.[1,2] Although previous studies have demonstrated the substantial risk of death following gastrostomy insertion and some risk factors have been identified,[3,4] no previous investigators have described a scoring system for gastrostomy insertion. A prospective unselected dual-centre study was undertaken in order to establish the relative importance of risk factors for mortality after gastrostomy insertion. A simple numerical scoring system to categorize patients' risk of death was then formulated and validated on an independent second cohort of patients.

All patients referred for gastrostomy are prospectively included in a database along with demographic, biochemical and outcome data. Gastrostomy insertions from two teaching hospitals from February 2004 to February 2007 were analysed. There were 887 referrals resulting in 837 gastrostomy insertions. The largest cohort was at site A and was used to construct a risk stratification scoring system. Site B was used to validate the scoring system.

Site A received 552 referrals and 403 new gastrostomies were inserted (median age 64 years, 268 males). Overall, 30 d mortality rate was fifty-one of 403 (12.7%) with the highest risk in those with dementia (40%) followed by stroke (22.2%). Univariate analysis identified that 30 d mortality was associated with age (OR 3.4), albumin (OR 5.6), cardiac comorbidity (OR 2.0) and neurological comorbidity (OR 1.7). On multivariate analysis only age and albumin remained significant (both $P<0.001$) and were then modelled and attributed scores, with age scoring 0 or 1 and albumin scoring 0, 1 or 2, giving composite scores from 0 to 3. Scores of 0, 1, 2 and 3 gave 30 d mortalities (%) of 0 (95% CI 0, 2.1), 7 (95% CI 2.9, 13.9), 21.3 (95% CI 13.5, 30.9) and 37.3 (95% CI 24.1, 51.9) respectively. Kaplan-Meier curves stratified by total score showed a significantly increased mortality at 7 ($P=0.0003$), 30 ($P<0.0001$) and 90 ($P<0.0001$) d. Site B (validation cohort) received 335 referrals and inserted 153 new gastrostomies (median age 77 years, sixty-four males) with a 30 d mortality of twenty-four of 153 (15.7%). Application of the scoring system in this validation cohort gave comparable 30 d mortalities (%) of 0, 7.7, 15.6 and 29.3 for scores 0, 1, 2 and 3 respectively.

The Sheffield gastrostomy score can be used to categorize patients being considered for gastrostomy insertion and to calculate risk of death at 30 d. Further external validation is required.

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