Optimization of Peri-Operative Hdu Care for Elective Colorectal Patients

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Abstract

**Background:** Despite recent advances, high-risk patients undergoing elective colorectal surgery still have significant morbidity and mortality. For patients electively admitted to level II care, premature discharge can contribute to poor outcomes.

**Objectives:** The main objectives were to review the level II care provided to high-risk elective colorectal patients with regards to their timing of discharge from the HDU and rate of post-operative complications, re-admissions, total length of stay (LOS) and mortality

**Methods:** All elective colorectal patients admitted to HDU during 2010 were included. Patients were divided into two groups with regards to their stay on HDU: Group1 ≤ 48 hrs and Group2 >48 hrs. Data regarding demographics, post-operative complications, LOS, re-admission to HDU and mortality were collected and analysed using SPSS version 14.

**Results:** Out of the total of 40 patients, 24 (60%) were females; the median age was 74 (IQR 45-92) years. Laparoscopic procedures were performed in 31 (77.5%) patients. There were 26 patients in Group 1 and 14 in Group 2. Post-operative complications were higher (72.2% Vs 27.8%, p-value=0.04), and the LOS was significantly longer amongst Group 1 patients (8 [IQR 4-11] days p value 0.03). Four patients in Group 1 were readmitted to HDU compared to none in Group 2. No mortality was observed.

**Conclusion:** Early discharge from the HDU is associated with significant risk of complications, HDU re-admission (10%) and prolonged LOS. Ensuring a minimum HDU stay of 48 hrs could reduce post-operative morbidity, thus optimizing HDU patient care.

Keywords: Colorectal cancer; Elective surgery; HDU care; Re-admissions

Introduction

A recent report from the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) showed that only half of high-risk surgical patients received optimal care [1]. Surgery in high-risk patients represented 12.5% of interventions, but was responsible for 83.8% of observed mortality [2].

Major colorectal resections account for approximately 4% of all the elective operations in England, Wales and Northern Ireland [3]. Although the post-operative morbidity for major elective colorectal surgery has declined from around 5.6% to 2.4% over the past decade, the post-operative morbidity in these patients may be as high as 37.2% [2-4]. Good post-operative care can significantly reduce morbidity and mortality figures.

The Scottish Intercollegiate Guidelines Network (SIGN) provides guidance regarding the provision of post-operative care following elective major surgical procedures. It states that the care may be provided at three levels: level I ward, level II High Dependency Unit (HDU) and level III Intensive Care Unit (ICU), depending on the patient’s general condition, level of monitoring and organ support required [5].

The HDU forms an integral part of surgical care pathways since nearly all of the complicated cases are admitted either to HDU or ICU [6]. Previous NCEPOD reports have highlighted that peri-operative morbidity and mortality for high-risk cases can be reduced by elective HDU/ITU admissions, similar findings have been shown in a French study [7,8]. In the light of this guidance, the number of level II critical care beds in England has increased by 91% since 1999; nevertheless, considering that the number of elective procedures has also significantly increased during the last decade, the relative increase in the critical care beds is still very low to cater for the needs of high-risk patients [9]. Premature discharge of such patients from the critical care unit has been linked with poor outcomes [10].

It has already been shown that the highest number of surgical patients (30-35%) admitted to the HDU belong to colorectal surgery, underlying the high risk involved in this complex patient group [4,8]. Pre-existing medical conditions directly contribute to higher morbidity and mortality after major colorectal surgery [11]; the patients most at risk of death are the elderly with pre-existing medical morbidity [12,13]. Consideration should therefore be given for the routine HDU admission of high-risk patients after major colorectal surgery with the scope to reduce morbidity and mortality [3,4,9].

This study aims to review the level II care provided to high-risk elective colorectal patients with regards to timing of discharge from the HDU and rates of post-operative complications, re-admissions, total Length of Stay (LOS) and mortality.

Methods

A cross-sectional study was conducted at the Wirral University Teaching Hospital. All the elective colorectal patients admitted to the HDU during 2010 were included.

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The analysis was conducted in SPSS version 14. Appropriate statistical tests were applied, with a p-value of < 0.05 considered significant. The incidence of post-operative complications was significantly higher in Group 1 than in Group 2 patients (p-value = 0.04). The ASA grade was 2 in 42.5% (n=17) and 3 in 57.5% (n=23) patients respectively. Laparoscopic procedures were performed in 77.5% (n=31) and open surgery in 22.5% (n=9) of cases; there were no conversions from laparoscopic to open surgery. A defunctioning loop ileostomy was constructed in 35% (n=14) of cases.

The length of stay was significantly longer amongst Group 1 patients (median 8 (IQR 4-11) days) than in Group 2 (median 6.5 (IQR 4-12) days). There was no mortality observed during the study.

**Discussion**

High-risk patients account for over 80% of mortality and morbidity after elective major surgery; despite this, fewer than 15% of these patients are admitted to critical care facilities [3]. Focusing on the immediate postoperative care of these patients with appropriate use of level II and level III care facilities seems the logical step in improving outcomes.

The majority of postoperative complications following colorectal surgery are respiratory and cardiac [4,14]; this has been confirmed in our series. Most of these adverse events occur more than 24 hours following surgery, often when the patients had already been discharged.
Conclusion

In our cohort of high-risk patients, discharge from the HDU after less than 48 hours was associated with increased risk of complications, HDU re-admission (10%) and prolonged LOS. Ensuring a minimum HDU stay of 48 hrs could reduce morbidity thus optimizing HDU patient care.

References

16. Modernising Care for Patients Undergoing Major Surgery.

Figure 3: HDU stay & length of hospital stay.