FACTORS PREDICTING 30 DAYS RE-ADMISSION AFTER LAPAROSCOPIC COLORECTAL CANCER SURGERY WITHIN ENHANCED RECOVERY

Readmission Following Laparoscopic Colorectal Surgery within Enhanced Recovery

• Background

• Readmission after colorectal surgery

• Univariate and multivariate analysis on factors predicting readmission- a prediction model

• Conclusions
Rates of Emergency Readmissions

EMERGENCY READMISSIONS: ENGLAND 2000-01 to 2010-11

- Age 0-15
- Age 16-74
- Age 75+
- Age 16+
- All ages

Number readmissions

Year
Hospitals to face financial penalties for readmissions

By Michelle Roberts
Health reporter, BBC News

Hospitals will face financial penalties if patients are readmitted as an emergency within 30 days of being discharged, under government plans.

Health Secretary Andrew Lansley: "This promises to be a much better system"

The scheme was unveiled on Tuesday by Andrew Lansley, in his first major speech as the new health secretary.
17120 major surgical resections
20% patients readmitted

24% of rectal surgery patients
18% of colon surgery patients
Prediction of readmission

Aim

Factors associated with 30-day readmission after laparoscopic colorectal surgery within Enhanced Recovery After Surgery

Methods

• 275 consecutive colorectal cancer patients
• Data collected on
  • Patient demography
  • Operative and post-operative outcomes
  • Compliance with all ERAS elements
• Univariate and Multivariate analysis of factors predicting readmission
Pre-operative
1. Patient counseling
2. No premedication
3. No bowel prep
4. CHO loading
5. No starvation

Intra-operative
1. Epidural Analgesia
2. Short acting anaesthesia
3. Minimum incision length
4. No NG tube or drains
5. Goal-directed fluid therapy

Post-operative
1. Early post-op feeding
2. Early mobilisation
3. Discontinuation of IV fluid day 1
4. Early removal of drains and tubes
5. Multi-modal analgesia

Median compliance with ERAS was 93%
Factors predicting readmission: Results

- 132 female, 143 male
- Median age 70 years (range 37-94)
- 12% laparoscopic converted to open
- Median length of stay 5 days
- 12% of patients readmitted

10% patients received preoperative treatment
Reasons for Readmission

- Wound Infection
- Bowel obstruction
- Abscess
- PR bleeding
- Collection
- Anastomotic leak
- Deranged LFTs
- Wound dehiscence
- Post op sepsis
- PE
- Hiatus hernia
## Prediction: Univariate Analysis

<table>
<thead>
<tr>
<th>Factor</th>
<th>P-value</th>
<th>Odds Ratio</th>
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<tr>
<td><strong>Patient &amp; Preoperative</strong></td>
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<tr>
<td>Preoperative adjuvant therapy</td>
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<td>8.2</td>
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<td><strong>Intraoperative variables</strong></td>
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<td>NS</td>
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<td><strong>Postoperative</strong></td>
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<td>Continuation of intravenous fluids</td>
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<td>Epidural Failure</td>
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<td>Vomiting requiring NG tube</td>
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<td><strong>ERAS</strong></td>
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<td>ERAS compliance</td>
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<td>0.44</td>
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<tr>
<td>Length of hospital stay</td>
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<td>1.5</td>
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</table>
Prediction: Multivariate Analysis

Logistic regression:
Only significant variables in the univariate analysis (P<.05) were included in the model

After adjusting for cofounders such as age, sex, ASA, BMI

Two significant variables were identified:

• Preoperative adjuvant treatment (p= 0.003; OR=4)
• ERAS compliance (p= 0.037; OR= 0.96)
Prediction model for readmission

Prediction score = 1.499 X any neoadjuvant - 0.036 x ERAS Compliance % score + 0.938

A positive score means a probability of readmission whereas a negative score would suggest no readmission.
Conclusions

• There is an association between 30 day readmission and:
  – Preoperative adjuvant treatment in rectal cancer
  – Poor ERAS compliance

• Larger studies are required to validate these finding and to investigate the optimum pathway for patients requiring adjuvant treatment
Thank you