Golden Jubilee National Hospital experience of piloting cardiac Enhanced Recovery After Surgery (ERAS) in patients undergoing elective cardiac surgery

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SCTS
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History and Evolution of ERAS

- Originally developed in Denmark by Henrik Kehlet in Colorectal Surgery.
- Improve patient outcomes and speed up a patient's recovery after surgery.
- Reduce stress response to surgery, improving recovery time.
- Patients are active in their own recovery.
- Growing in momentum in other surgical specialties including Cardiac and Thoracic Surgery.
ERAS Principles

- Getting the patient in the best possible condition for surgery
  - Mentally and physically
- Have the best possible management during surgery
- Experience the best possible post-op rehabilitation

Active Patient Involvement
Multidisciplinary Team Approach
Improved Patient Outcomes
The Pilot Study

- **Aim** – To assess if ERAS principles can be safely implemented in cardiac surgery

- **Population** – CABG and tAVR under 2 Surgeons.

- **Inclusion criteria**
  - Elective primary CABG and tAVR
  - No cognitive impairment
  - <75 years old
Cardiac ERAS Programme

- **Pre-operatively**
  - Patient education, health promotion and counseling provided by ERAS Practitioner – management of expectations
  - Minimise fasting times
  - Patient specific premed

- **Intra-operatively**
  - Minimally invasive approaches
  - Avoiding hypothermia
Contd.

- Post-operatively
  - Early extubation
  - Active, early mobilisation
  - Early reintroduction of oral diet
  - Active management of PONV
  - Standardised pain pathway
  - Daily discharge planning in partnership with patient
  - Follow-up phone call 48 hours discharge
Method

- 21 patients included under care of 2 surgeons
- All received the ERAS pathway described
- Focus on
  - Pre-operative preparation of patients
    - ERAS practitioner input and Cardiac information booklet
  - Nurse-led post-operative management
  - Patient engagement in pathway
<table>
<thead>
<tr>
<th>Procedure</th>
<th>CABG (n=17)</th>
<th>tAVR (n=4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Operative</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean EuroSCORE II (%)</td>
<td>2.45</td>
<td>4.61</td>
</tr>
<tr>
<td>Male:Female</td>
<td>12:2</td>
<td>4:0</td>
</tr>
<tr>
<td>Age (mean±SD)</td>
<td>58.8±10.7</td>
<td>64.8±18.0</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>4/17</td>
<td>1/4</td>
</tr>
<tr>
<td>LVEF(&lt;60%)</td>
<td>4/17</td>
<td>0/4</td>
</tr>
<tr>
<td>BMI</td>
<td>28.9±4.7</td>
<td>29.6±5.5</td>
</tr>
<tr>
<td><strong>Perioperative (mean±SD)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theatre time (mins)</td>
<td>240±39</td>
<td>228±79</td>
</tr>
<tr>
<td>Bypass Time (mins)</td>
<td>71±34</td>
<td>95±41</td>
</tr>
<tr>
<td>Xclamp time mins</td>
<td>55±25</td>
<td>74±33</td>
</tr>
<tr>
<td>Temperature on ICU admission (°C)</td>
<td>36.7±0.6</td>
<td>36.8±0.5</td>
</tr>
<tr>
<td>Ventilation Time(mins)*</td>
<td>222 (165,285)</td>
<td>235(204,265)</td>
</tr>
<tr>
<td><strong>Postoperative</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ICU Stay (days)</td>
<td>1.2</td>
<td>1.0</td>
</tr>
<tr>
<td>Mean Hospital Stay (days)</td>
<td>5.7</td>
<td>7.0</td>
</tr>
<tr>
<td>Complications delaying discharge</td>
<td>5/17</td>
<td>1/4</td>
</tr>
<tr>
<td>Readmissions</td>
<td>1/17</td>
<td>0/4</td>
</tr>
</tbody>
</table>

*Expressed as Median (1st Quartile,3rd Quartile)
Results

- 21 patients
  - 17 CABG and 4 tAVR

- 2 patients went home POD3

- Median hospital LOS 6 days compared to 9 days for non-ERAS

- Mean LOS CABG 5.7

- Mean LOS tAVR 7
Results

Mean Hospital LOS

- CABG
- tAVR
Results

- All patients mobilised before midday POD1
- 20 patients extubated <6 hours postoperatively
- 8 patients discharged to ward POD1
- 19 patients did not require IV Fluids beyond midday POD1
- 5 delayed discharge – AF, ileus, pnuemothorax, requiring oxygen
- 1 readmission – AF
Discussion

- Results achieved through active engagement of patients and staff delivering ERAS principles
- Greater compliance with cardiac ERAS principles equated to better outcomes for patients
- CABG patients shorter LOS – younger, shorter bypass and ventilation times
- Preliminary findings show ERAS principles can be safely applied to cardiac cohort improving patient outcomes
Future of ERAS in Cardiac Surgery

- Greater numbers required to allow results to be generalisable
- Greater numbers may uncover predictors of ERAS success/failure in cardiac cohort
- Prehabilitation
- DOSA
- Spread ERAS principles to wider cardiac population
  - Adjusted expectations for more complicated procedures
Final word from our 1st ERAS patient
Thank you

Questions?