The effect of a physiotherapy prehabilitation programme on postoperative outcomes in patients undergoing cardiac or thoracic surgery.

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About Us

- Golden Jubilee National Hospital (GJNH) is home to regional and national heart and lung services in Scotland
- National Waiting Times Centre
- Approximately 1400 major heart surgery + 1200 lung procedures every year
Prehabilitation

“the process of enhancing the functional capacity of the individual to enable him or her to withstand a stressful event”

(Ditmyer, Topp and Pifer 2002; Topp et al 2002)
Prehabilitation
Why Is Prehabilitation Important?

Modified from Grocott (2015)
Theory of Prehabilitation

Carli & Zavorsky (2005)
Fear Of Exercise

- Patients who are awaiting cardiothoracic surgery are often fearful of being physically active (Mooney, Fitzsimons and Richardson 2007)
Teachable Moment

Preoperative waiting period = an ideal opportunity to maintain & promote physical activity taking advantage of the “teachable moment” of recent diagnosis to promote changes in health related behaviour

(Mina et al 2014)
Henrik Kehlet spoke about achievements in enhanced recovery AFTER surgery and the advances in enhanced recovery BEFORE surgery i.e.) prehabilitation.

He asked the direct question:

“why are cardiothoracic and orthopaedics so far behind?”
Lack Of Evidence

- Evidence for prehabilitation in cardiothoracic specialties are mainly within heart failure (McKelvie et al 2002)

- Studies are limited to small sample sizes & are mainly class based reliant on physiotherapy led or 1:1 interaction → extra commitment from patients to attend classes (Furze et al 2008, Sawatzky et al 2014)

- Research suggests that home based exercise is feasible and safe, with comparable outcomes to supervised programmes (Brocki et al 2014)
Ethical approval has been granted for this pilot study to determine the feasibility for a full RCT

Concentrating on the physical element of prehabilitation

Wynter-Blyth and Moorthy (2017)
Aims

☐ To determine whether a home based physiotherapy prehabilitation programme improves patients’ functional capacity.

☐ Measured by a 6 minute walk test (6MWT) prior to surgery and improve post surgical recovery and recovery of functional capacity earlier.
Outcome Measures

- Primary:
  - Difference between groups functional activity from baseline to point of admission for surgery as measured by the 6MWT
Outcome Measures

Secondary:
- Functional capacity on discharge and follow-up
- Physiotherapy length of stay
- Total post-operative hospital length of stay
- EQ-5D questionnaire
Patient attends preop Ax clinic & accepted for surgery

• Patients complete 6MWT (baseline)
• Patients randomised to groups

Standard care group:
Preoperative education only

Day of hospital admission:
All patients receive physiotherapy education regarding postop care
All patients repeat 6MWT

Prehabilitation group:
Preoperative education
Walking programme
Deep breathing exercises - 3x daily

Theatre

Postoperative physiotherapy pathway

All patients repeat 6MWT after discharge from physiotherapy

All patients repeat 6MWT at follow up appointment (approx 6-8 weeks)
Results

- Recruitment ongoing
- Preliminary results for cardiac surgery (n=4) for primary outcome
- Aim for (n=20) in both cardiac and thoracic to allow power calculation

<table>
<thead>
<tr>
<th>6MWT Measure</th>
<th>Standard Care Group (Mean distance (m))</th>
<th>Prehabilitation Group (Mean distance (m))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>407.90</td>
<td>420.16</td>
</tr>
<tr>
<td>Preoperative</td>
<td>424.30</td>
<td>482.59</td>
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<tr>
<td>Change baseline to preoperative</td>
<td>+32.59</td>
<td>+40.59</td>
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</tbody>
</table>
Final Thoughts...

- Prehabilitation could allow a move away from the “impairment driven, reactive model of care” towards a proactive approach that motivates patients to become active participants in their recovery.
- Statistically we will all undergo surgery at some point in our lives.
- Therefore...

**WE ARE ALL PREOPERATIVE**
References


- Wynter-Blyth V and Moorthy K Prehabilitation preparing patients for surgery: Major surgery is like running a marathon—and both require training BMJ 2017;358.