A CLINICAL SCREENING TOOL FOR PHYSIOTHERAPY AFTER CARDIAC SURGERY

Chelliah Paramasivan-Deputy Team Leader Physiotherapist.
AIMS

- To develop and implement a screening tool
  - In uncomplicated cardiac surgery patients.
- To enable more targeted physiotherapy.
- To enable directed use of physiotherapy time.
- To determine the effect of the implementation on immediate post-operative outcomes after cardiac surgery.
Papworth Physiotherapy Cardiac Surgery Screening tool

PMH

- History of productive lung disease?
  - Yes
    - Current smoker or ex smoker within 2 months?
      - Yes
        - BMI <20 or >30?
          - Yes
            - Pre-op mobility or neurological issues?
              - Yes
                - Ventilated?
                  - Yes
                    - Fio\textsubscript{2} requirements > 4lO\textsubscript{2}/min
                      - Yes
                        - Hypercapnia >6.0 or Hypoxia <10.0?
                          - Yes
                            - RR >20?
                              - Yes
                                - Physio to count and check
                                  - Yes
                                    - Productive cough?
                                      - Yes
                                        - If CXR- evidence of significant atelectasis?
                                          - Yes
                                            - Physiotherapy indicated
                                          
                                        
                                    
                                  
                            
                          
                        
                    
                
            
          
        
    
  
- No

Assessment

- If No to all above

If No to all above

- Does not require Day 1 treatment
METHODS

- **High Risk**: Screened and treated by Physiotherapist

- **Low Risk**: Screened, but not treated by Physiotherapist

- **Low risk patients**:
  - SOOB, Advised DBExs and wound care by Nursing staff.
  - Nurse advised to contact Physiotherapist if clinical condition changed for low risk patients.

- **Low risk Patients** followed up routinely on Day 2 post OP.
DATA COLLECTION

- Bespoke data collection forms used by physiotherapy team.
- Data collection for six months.
- Data collection on CRU functioning days
  - five-six days per week
- Retrospective data collection of incomplete or missing data
  - from CIS and physiotherapy database.
DATA INCLUDED

- No of patients screened and seen or not seen
- Calculated physiotherapy time saved for screening and not treating low risk patients
  
  Mean time spent for patients seen and treated — time spent for patients seen and not treated

- Hospital Length of stay
- Adverse events up to 48 hrs post OP.
  - Number of patients Requiring
    - Out of hours physiotherapy review
    - ALERT review (Specialist nurse who review acutely detoriating patient) and or return to ITU
RESULTS
Patients

Number of patients

- Patients screened and treated: 403
- Patients screened and not treated: 235
- Missing data: 11
**Risk Factors for PPC**

- CXR evidence of significant atelectasis
- BMI > 30 or <20
- FiO2 > 40%
- Productive cough
- Hypoxia PaO2 <10.0
- Hypersomnia PaO2 <6.0
- Current smoker or recent ex-smoker <2 months
- History of productive lung disease
- Pre-op neurological or mobility impairment
- RER > 20
- Ventilated
**OUTCOMES**

<table>
<thead>
<tr>
<th>LENGTH OF STAY</th>
<th>MEDIAN</th>
<th>IQR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient screened and not seen</td>
<td>7 DAYS</td>
<td>6-10 DAYS</td>
</tr>
<tr>
<td>Patient screened and seen</td>
<td>8 DAYS</td>
<td>6-12 DAYS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADVERSE EVENT OCCURRENCE UP TO 48 HOURS POST OP</th>
<th>1.2%(n=8) OVERALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALERT Review/Return to ITU (ALERT-Specialist nurse team who review acutely detoriating patient)</td>
<td>0.9% High Risk group</td>
</tr>
<tr>
<td>Out of hours physiotherapist review</td>
<td>0.3% Low risk group</td>
</tr>
<tr>
<td>1.3% (n=9)</td>
<td></td>
</tr>
</tbody>
</table>

**PHYSIOTHERAPY TIME SAVED FOR NOT TREATING LOW RISK PATIENTS**

62.5 Hrs over 6 months = HALF AN HOUR A DAY
**Discussion**

- Targeted physiotherapy and directed use of time.
- ITU readmission rate in low risk patients <0.5%
  - minimal adverse events in Low risk patient group.
- **Limitations:**
  - No Comparator group
  - Low complication rates.
- **Strengths:**
  - ‘real-world’ setting
  - low missing data
  - Generalisable to UK cardiac surgery.
CONCLUSION

- PPST is a safe and easy to use tool in uncomplicated cardiac surgery patients.
- Routine physiotherapy may not be required in low risk patients on Day 1 post cardiac surgery.
- Recommendations: PPST validation requires further investigation across UK Cardiac surgical population.
- Prophylactic physiotherapy after routine cardiac surgery?
  - RCT is overdue
THANK YOU