Nursing PREDOCS consultation prevents postoperative delirium, depression, pressure ulcers and infections

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Facts & Figures

- Over 70% of all cardiac surgery procedures in the Netherlands are done in patients of 65 years and older.

- Older patients do have a higher risk on functional and/or cognitive decline due to occurrence of adverse events during the hospital admission like:
  
  **Delirium** 14.7% - 54.9% (Arenson et al, 2013; Smulter et al, 2013)

  **Depression** 10.0% - 37.7% (Horne et al, 2013; Doering et al, 2013)

  **Pressure Ulcer** 14.0% - 18% (Brindle et al, 2012; Gomez et al, 2009)

  **Infection** 8.3% - 54.5% (Rahmanian et al, 2013; Segers et al, 2008)
The part of older people is increasing in our societies

Population Structure

100 years ago

Due to
- Poor hygiene
- High infection rate
- No clean drinking water
- Wars and battles
- Poor housing
- Food shortages

Population Structure

Nowadays

Due to
- Bathing, cleaning and clothing
- Antibiotics treatments / Healthcare
- Clean tap water
- Peace and stability
- Social housing
- Food surplus
Problem & Approach

Pre admission
Pre surgery

Hospital admission
Surgery
ICU
Medium Care stay
Regular Ward stay

Post Discharge
Home
Nursing Home

Desired Health level

Average Health level at start
Intervention Development & Feasibility

**Development**
- 1. Identifying the evidence base
- 2. Identifying/developing theory
- 3. Modelling process and outcomes

**Feasibility/piloting**
- 1. Testing procedures
- 2. Estimating recruitment/retention
- 3. Determining sample size

**Evaluation**
- 1. Assessing effectiveness
- 2. Understanding change process
- 3. Assessing cost-effectiveness

**Implementation**
- 1. Dissemination
- 2. Surveillance and monitoring
- 3. Long term follow-up

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**MRC (2008)**
Identifying the evidence base:
1. Systematic review prevalence postoperative complications
2. Systematic review preadmission patient characteristics related to a problematic postoperative course
3. Systematic literature review: effective preventive interventions

Identifying / developing theory:
4. Identifying risk factors for surgery and ICU complications (11,395 cardiac surgery patients)
5. Etiologic relations: modifiable preadmission characteristics and post surgery complications (n=1,761)
6. Interviews patients: needs (n=9)
7. Surveys nurses: opinions prevalence and preventions (n=250)

Modelling process and outcomes:
8. Prognostic modelling: selection of frail patients (n=1,761)
9. Intervention development
Intervention PREDOCS

Intervention includes 3 parts:
1. General applicable for all cardiac surgery patients
2. Selection of frail patients (increased risk on postoperative complications)
3. Specific preventive measures according to the increased risk

Part 1 (General):
a. Standard information on three levels:
   • Procedure / What patient will experience / What patient can do
b. Nutritional condition
c. Empower partner/children/social environment
d. Pain management for rapid postoperative recovery
**Intervention PREDOCS**

**Part 2 (Selection):**

### Delirium Risk Score during the Preoperative Consultation

<table>
<thead>
<tr>
<th>Points</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Previous Delirium</td>
</tr>
<tr>
<td>2</td>
<td>Diagnosis Alzheimer</td>
</tr>
<tr>
<td>2</td>
<td>Use of a walking stick or a walker</td>
</tr>
<tr>
<td>1</td>
<td>EuroSCORE greater than 20% risk</td>
</tr>
<tr>
<td>1</td>
<td>Receives support from family / friends (informal care) and living alone or no active support partner</td>
</tr>
<tr>
<td>1</td>
<td>Age above 70 years</td>
</tr>
<tr>
<td>1</td>
<td>History of CVA / TIA</td>
</tr>
<tr>
<td>1</td>
<td>Use of Benzodiazepines</td>
</tr>
<tr>
<td><strong>Total (increased risk of delirium is 3 or higher)</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Depression Risk Score during the Preoperative Consultation

<table>
<thead>
<tr>
<th>Points</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Use of insoles</td>
</tr>
<tr>
<td>2</td>
<td>Deaf of deafness</td>
</tr>
<tr>
<td>1</td>
<td>Female</td>
</tr>
<tr>
<td>1</td>
<td>Use of Benzodiazepines</td>
</tr>
<tr>
<td><strong>Total (increased risk of depression at 2 or higher)</strong></td>
<td></td>
</tr>
</tbody>
</table>

*) within the survey the patient is asked whether she or he has a disability. The response categories were: 'deaf', 'blind', 'disability' and 'intellectual disability'.

### Pressure Ulcer Risk Score during the Preoperative Consultation

<table>
<thead>
<tr>
<th>Points</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>History of Tricuspid Insufficiency</td>
</tr>
<tr>
<td>3</td>
<td>Physically limited *</td>
</tr>
<tr>
<td>3</td>
<td>Living alone</td>
</tr>
<tr>
<td>2</td>
<td>EuroSCORE greater than 20% risk</td>
</tr>
<tr>
<td>2</td>
<td>Use of Fraxiparin</td>
</tr>
<tr>
<td>1</td>
<td>Renal impairment</td>
</tr>
<tr>
<td><strong>Total (increased risk of pressure ulcers at 3 or higher)</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Infection Risk Score during the Preoperative Consultation

<table>
<thead>
<tr>
<th>Points</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>History of Tricuspid Insufficiency</td>
</tr>
<tr>
<td>2</td>
<td>EuroSCORE greater than 20% risk</td>
</tr>
<tr>
<td>2</td>
<td>Use of Diuretics</td>
</tr>
<tr>
<td><strong>Total (increased risk of infection is 3 or higher)</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Statistical performance (n = 1,761):**

- AUC’s: 0.72; 0.59; 0.68; 0.64
- P-values, U-statistics: 1; 1; 0.16; 1

.... clinical eye!
Intervention PREDOCS

Part 3 (Preventive measures):

**Delirium**
a. Signs & Symptoms  
b. Favorite food and drinks  
c. Quick mobilization  
d. Sleeping habits  
e. Use the aids  
f. Orientation  
g. Will for information  
h. Daily visits or sleeping

**Depression**
a. Relaxing music  
b. Daily visits  
c. Signs & Symptoms

**Infection**
a. Breathing exercises  
b. Coughing up / Huffing  
c. Signs & Symptoms  
d. Not touching the wound

**Pressure Ulcer**
  Signs & Symptoms

**Continuity of care**
Report of findings and intervention given, in the patient file for ward care
Solution:

*Prepare patients for their hospital admission with cardiac surgery!*

**Pre Admission**
Home Care

- **Preparation by the PREDOCS Program**

**PREDOCS Program**

*Part 1 General information on three levels:*
1) The procedure itself
2) The patient’s expected experiences
3) What the patient can and must do

*Part 2 Selecting frail patients by screening them on an increased risk on postoperative:* Delirium, Depression, Pressure Ulcer or Infection

*Part 3 Measures for decreasing risk(s) on postop.:* Delirium, Depression, Pressure Ulcer, Infection

**Hospital admission**

- **Decreased Complication Risk**

**Post Discharge**
Home Nursing Home

- Increased Health level
- Average
- Health level at start
- Decreased

*Continuity of care to nurses and doctors in the hospital*
- Informing them on increased risk(s) postoperative Delirium, Depression, Pressure Ulcer or Infection
- Advise on monitoring and prevention
better in better out in cardiac surgery
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Thank you for your attention

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