Acute Hip Fracture Rehabilitation

Michelle Fitzgerald BSc, MSc, MISCP
Senior Physiotherapist, Tallaght Hospital, Dublin

4th National Irish Hip Fracture Conference
RCSI 18th November 2015
“Mobilise with physio”
Overview

1. Why mobility is important
2. The evidence base
3. Research study
4. The plan for 2016
Background

- Senior Physiotherapist, Tallaght Hospital
- MSc Neuromusculoskeletal Physiotherapy UCD
- Hip fracture research, audit & quality improvement
- National hip fracture steering group member
- Irish National Orthopaedic Register
- Global Fragility Fracture Network
- Clinical interest group orthopaedics (CPO, IPONG)
The “Hip Attack”

10% Die within a month

33% Die within a year

25% Long Term Care

50% Unable to walk unaided

Stretch Health System

What predicts mortality?
What predicts hip fracture mortality?

- Age
- Gender
- Medical fitness
- Comorbidities
- Cognition
- Etc
- Etc
Anything else?
What else predicts mortality?

Early mobility
Early Mobility is Important

- Post-Op Mobility
- Long-Term Survival + Function

(Boonen et al., 2004, Dubljanin-Raspopovic et al., 2013, Hirose et al., 2010)
Active Acute Rehabilitation

• Maximises recovery

• Successful discharge home

• Decreases length of stay

• Reduce overall cost

“Rehabilitation of hip fractures is the central challenge for trauma services”

(British Orthopaedic Association 2007)
Review of Rehabilitation

- Amount of rehab varies widely in acute hospitals
- Confidence in rehabilitation progression
- More intense post-operative physio
- Barriers identified
- No data in Ireland
- Time for change

Time for Change in Ireland

• In order to get better we need to measure what we are currently doing.
• First step in effecting change:
• Add function specific data-fields to the IHFD
  – Functional progress
  – Rehabilitation service provision
  – Effect of hospital approaches
Irish Hip Fracture Physio Working Group

- Irish Physiotherapy Hip Fracture Working Group
  - Edel Callanan (Orthopaedic QCCD therapy lead)
  - Dr C Blake & Dr C Cunningham (UCD)
  - Michelle Fitzgerald (Senior Physiotherapist)

- ADPATE framework for guideline adaptation
Databases

International Guidelines

Direct Communication
<table>
<thead>
<tr>
<th>Care Standard</th>
<th>Guideline Synopsis</th>
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<tbody>
<tr>
<td>Physio assessment</td>
<td>First postoperative day</td>
</tr>
<tr>
<td>Frequency of mobilisation</td>
<td>Daily (7days)</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>Early, MDT</td>
</tr>
<tr>
<td>Discharge planning</td>
<td>Early, MDT, individualised</td>
</tr>
<tr>
<td>Type of physiotherapy</td>
<td>Multidimensional</td>
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</tbody>
</table>

Standardised Outcome Measures

• Hip fracture mobility measures vary widely
• Feasible in clinical practice
• Valid and reliable
• Hip fracture population
• Predict outcome
• Comparison and research

(Foss et al., 2006, Farag et al., 2012, Hollman et al., 2008, Laflamme et al., 2012, Kristensen et al., 2009b, Kristensen et al., 2007)
# New Mobility Score

<table>
<thead>
<tr>
<th>NMS Category Score</th>
<th>Functional ability</th>
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<tbody>
<tr>
<td>0</td>
<td>Not at all</td>
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<tr>
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<td>Assistance of one person</td>
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<td>2</td>
<td>With an aid</td>
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Indoor walking, outdoor walking, shopping
New Mobility Score

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Overall Score: 0-9
**Cumulated Ambulatory Score (CAS)**

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**Bed mobility, STS, mobilisation**
## Cumulated Ambulatory Score (CAS)

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**Overall Score: 0-6**
Predictors of Mobility Outcome at One Week Post Hip Fracture Surgery

Michelle Fitzgerald\textsuperscript{1}, Blake, C\textsuperscript{2}. Askin, D\textsuperscript{3}. Coughlan, T\textsuperscript{3}. Quinlan, J\textsuperscript{3}. Cunningham, C\textsuperscript{2}.

\textsuperscript{1} Physiotherapy Department & Bone and Joint Unit\textsuperscript{2}, Tallaght Hospital
\textsuperscript{3} School Of Public Health, Physiotherapy & Population Science, UCD
What should we do?

Influencing factors

Optimise early mobility

Rehabilitation Planning

(Health Service Executive, 2012, National Institute for Health and Clinical Excellence, 2011, Ranhoff et al., 2010, Svensson et al., 1996, Thomas et al., 2007)
Study Aim

Identify independent predictors of mobility at one week post hip fracture surgery
Methods

• 6 month study period
• Prospective observational cohort study
• 77 patients included (age 77.4±10.2 years)
• Low trauma hip fractures
• Routine physiotherapy
• Chi-square, fischer exact, regression analysis
Data Collection Time-Points

Day 1
- Patient Demographics
- Fracture-Specific Characteristics

Day 7
- Mobility Outcome Measures
  - Cumulated Ambulatory Score (CAS)
  - Timed up and Go (TUG)

Discharge
- Discharge Details
Fracture-Specific

- Ability to stand day one
- Time to Surgery
- ASA
- Fracture Type
- Operation
Data Collection Time-Points

Day 1
- Patient Demographics
- Fracture-Specific Characteristics

Day 7
- Mobility Outcome Measures
  Cumulated Ambulatory Score (CAS)
  Timed up and Go (TUG)

Discharge
- Discharge Details
# Results: One Week Postoperatively

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<tr>
<th>Mobility Outcome</th>
<th>Result</th>
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<tr>
<td>Median CAS score</td>
<td>3</td>
</tr>
<tr>
<td>Independent mobility</td>
<td>31% (n=24)</td>
</tr>
<tr>
<td>Mean (SD) TUG</td>
<td>61.7 (±21.1) secs</td>
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</table>
Rehabilitation Needs

• Low functional ability
• Rehabilitation to achieve pre-morbid function

➢ Early stratification for rehabilitation pathways

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<tr>
<th>Predictor variable</th>
<th>Univariate analysis OR (CI)</th>
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<tr>
<td><strong>Fall Location</strong></td>
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<tr>
<td>Outdoor</td>
<td>0.180 (0.58-0.557) Reference p=0.003</td>
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<td>&lt;36hours</td>
<td>8.625 (1.827 – 40.707) Reference p=0.006</td>
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Total CAS Score at Day 7

- **Ability to stand day 1 (p=0.018)**
  - Age (p=0.018)
  - Fall location (p=0.005)
  - Premorbid place of residence (p=0.014)
  - ASA (p=0.005)
  - Time to surgery (p=0.002)
  - NMS (p=0.002)
Clinical Implications

3 Predictors

- Pre-fracture function
- Modifiable variables
- Mobility Measures
Feasible clinical indicators for early rehabilitation planning
Baseline function

First postoperative day

Longer term

Discharge

IHFD Rehabilitation Data-fields 2016
Baseline
- New Mobility Score (0-9 + individual sections)

1st post-op Day
- Physio assessment (Yes/No)
- Mobilisation (Yes physio/Yes other/No)
- Cumulated Ambulatory Score (0-6)

Discharge
- Cumulated Ambulatory Score (0-6)

30day & 120 day
- New Mobility Score (0-9 + individual sections)
Guideline adherence

Service provision

No extra work

Ideal outcome measures

Leading hip fracture care

Irish data
Better hip fracture care - and better outcomes

Guideline adherence

No extra work

Ideal outcome measures

Irish data

Leading hip fracture care
Exciting Times Ahead !!

- Advocate
- Encourage
- Site visits
- AHP reps
- Future data-fields
Acknowledgements

• National hip fracture steering group

• Physiotherapy hip fracture working group

• Integrated care pathway work to date by physios/OTs
Thank You!
References (1)

- Department of Health (2013) health Care Quality Indicators in the Irish Health System; Examining the Potential of Hospital Discharge Data using the Hospital Inpatient Enquiry System. Available at http://www.dohc.ie/publications/pdf/HCQI.pdf (accessed on 21/04/2014)


• Fitzgerald M, Cunningham C. Prediction of mobility outcome at one week post hip fracture surgery. MSc Thesis 2014, UCD.


References (3)


References (4)


References (5)


References (6)


References (7)