Obstacles to appropriate and timely pain relief in the Emergency Department for people with cognitive impairment

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Why investigate pain management for people with a cognitive impairment in the Emergency Department?

76% of Australians 65+ years have a disability, long term condition or chronic illness (including dementia)

Australian EDs manage 7.2 million attendances every year and 1.4 million ED patients are 65+

28% of ED patients 65+ years have cognitive impairment – mainly dementia and/or delirium

Pain in ED patients with cognitive impairment is largely unrecognised, under-reported, under-treated and waiting time for analgesia is substantial (median 149 minutes)

Poorly managed pain in people with cognitive impairment result in adverse events, hospital readmissions, increased functional decline, further cognitive decline, behavioural changes and co-morbid mental illness

(Australian Institute of Health and Welfare 2014)
Study 1 Prevalence study- ED patients 65+ years with pain and a musculoskeletal injury

Study 2 Focus group study – ED Nurse pain assessment and management of ED patients 65+

Study 3 Comparative study- Time to Analgesia ED patients 65+ years with a long bone fracture

Study 4 Cluster randomised controlled trial – Effectiveness of PAINAD tool in improving Time to Analgesia of ED patients 65+ years with cognitive impairment and a long bone fracture
Funding

Emergency Care Institute of New South Wales and the Agency for Clinical Innovation. Neither body had any role in the conduct of the research.

Ethical approvals

Approval was obtained from 8 participating hospitals’ Human Research Ethics Committees (HREC 1212-430M) and operated according to the guidelines of the National Health and Medical Research Council of Australia.
Study 1 - Prevalence of ED patients 65+ with pain and a musculoskeletal injury

Retrospective Medical Audit (1Jan–31Dec 2014) Four Sydney EDs (FirstNet™)

Audit Findings

26.6% (N=44,778) 65+ YEARS

28.2% (N=12,538) OF PEOPLE 65+ HAD ASSESSED COGNITIVE IMPAIRMENT (CI)

12.2% (N=5,468) OF PEOPLE 65+ HAD MUSCULOSKELETAL CONDITIONS/INJURIES

24.5% (N=1,343) OF PEOPLE 65+ WITH MUSCULOSKELETAL INJURIES HAD LONG BONE FRACTURE

Ratio of people with NO CI to people WITH CI and a long bone fracture was 5:1
Study 2- ED Nurse pain assessment and management of ED patients 65+ years

16 Focus Groups, 4 Sydney EDs, 80 ED nurses

Question - What are the barriers and challenges to managing pain in the cognitively impaired (CI) older person in the ED?

Findings – in relation to people with a CI

Lack of tools to assist pain assessment
Lack of nurse confidence in assessing pain
Nurses need family/carer advice on baseline pain scores
Nurses have difficulty interpreting behaviour as a possible pain cue
Nurses and doctors fear person’s reactions to analgesia
ED policy limits timely and adequate staff attention to pain
Publications - ED Nurse pain assessment and management of ED patients 65+
Study 3- Comparative study - Time to Analgesia of ED patients 56+ years with a long bone fracture

Hypothesis - Probability 0.05, 85% power to show 25% absolute difference in Time to Analgesia (within 60 minutes) for ED patients with no CI, compared to ED patients with CI.

Study Sample (N=255) 73 people with CI (MMSE <24); 182 people with no CI

Patient Demographic profile

Age Mean 81 years; Median 79 years, SD 8.4 years

People with CI - Median 86 years (p<0.001)

Female 200 (78.4%), Male 55 (21.5%)

English as a first language 230 (94.5%)

Arrived by ambulance 186 (72.7%)

Fractures - Neck of femur 123 (48.2%), Distal limb long bone 92 (36.07%), Humerus 33 (12.94%), Pelvis 7 (2.75%)
Study 3 FINDINGS - Triage

Cognitive Impairment Diagnoses (n=73; 28.6%)
- Dementia (n=53; 72.6%)
- Unspecified cognitive impairment (n=7; 9.5%)
- Alzheimer’s (n=6; 8.2%)
- Parkinson’s syndrome (n=6; 8.2%)
- Delirium (n=1; 0.5%)

Triage Allocation

No statistical difference for people WITH CI and with no CI (Pearson’s $X^2$ test 2.00, p=0.16)

Triage Time - Mean 0.05 min. (SD 0.05 minutes); Time To Be Seen- Mean - 0.37 min. (SD 28 min)
Study 3 Findings - Time to Analgesia

Time to Analgesia (n=204)

83 minutes (Median) (SD 150 minutes)

<60 minutes 77 (37.7%); >60 minutes 127 (62.2%)

People with NO CI waited 72 minutes (Median) for analgesia

People WITH CI waited 149 minutes (Median) for analgesia

Significant difference in wait time of >60 minutes for analgesia (Pearson’s $X^2$ test 7.51, $p=0.006$) in people WITH CI (77%) versus people with no CI (56%) (Odds Ratio 2.14, 95% CI 1.01-4.50, $p=0.045$)
Fry M, Arendts G, Chenoweth L & MacGregor, C. 2014 Cognitive impairment is a risk factor for delayed analgesia in older people with long bone fracture: a multicentre exploratory study. *International Psychogeriatrics* [http://dx.doi.org/10.1017/S1041610214001732](http://dx.doi.org/10.1017/S1041610214001732)
Study 4- Two year cluster RCT- Effectiveness of the PAINAD.

Sites 8 of 14 Sydney Metropolitan Tertiary and District EDs.

Patient Inclusion criteria (N=602) Age 65 + and suspected long bone fracture

Patient Exclusion criteria Triage Category 1, multi-trauma, haemodynamic or respiratory instability.

Intervention Use of Pain Assessment in Advanced Dementia (PAINAD) by trained ED nurses- in response to 5 pain cues: breathing, vocalization, facial expression, body language and consolability.

Usual care – Routine visual analogue pain assessment

Primary Outcome Time to analgesia.

Secondary Outcomes PAINAD use frequency and accuracy, analgesic.
# PAINAD Tool

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td><strong>Breathing Independent of vocalisation</strong></td>
<td>Normal</td>
<td>Occasional laboured breathing. Short period of hyperventilation</td>
<td>Noisy laboured breathing. Long period of hyperventilation. Cheyne-stokes respirations</td>
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<tr>
<td><strong>Negative Vocalisation</strong></td>
<td>None</td>
<td>Occasional moan or groan. Low level speech with a negative or disapproving quality</td>
<td>Repeated troubled calling out. Loud moaning or groaning. Crying</td>
<td></td>
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<tr>
<td><strong>Facial Expression</strong></td>
<td>Smiling, or inexpressive</td>
<td>Sad. Frightened. Frown</td>
<td>Facial grimacing</td>
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<tr>
<td><strong>Body Language</strong></td>
<td>Relaxed</td>
<td>Tense. Distressed pacing. Fidgeting</td>
<td>Rigid. Fists clenched, knees pulled up. Pulling or pushing away. Striking out</td>
<td></td>
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<tr>
<td><strong>Consolability</strong></td>
<td>No need to console</td>
<td>Distracted or reassured by voice or touch</td>
<td>Unable to console, distract or reassure</td>
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TOTAL 13
<table>
<thead>
<tr>
<th><strong>Study 4- Baseline Data</strong></th>
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<tbody>
<tr>
<td><strong>Gender</strong></td>
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<tr>
<td>Female 84%, Male 16%</td>
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<tr>
<td><strong>Triage Code</strong></td>
</tr>
<tr>
<td>TC1 n=2 (0.2%)</td>
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<td>TC2 n=32 (3.1%)</td>
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<td>TC3 n=358 (59.8%)</td>
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<td>TC4 n=208 (34.8%)</td>
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<tr>
<td><strong>Reason for admission</strong></td>
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<tr>
<td>Fall n=570 (94.7%)</td>
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<tr>
<td><strong>Admission route</strong></td>
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<tr>
<td>Home n=345 (57.4%)</td>
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<tr>
<td>Nursing home n=257 (42.6%)</td>
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<tr>
<td><strong>SIS &lt;4, MMSE &lt;24</strong></td>
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<tr>
<td>271 (45.1%)</td>
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<tr>
<td><strong>Fracture stabilised</strong></td>
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<td>497 (82.8%), 513 (85.2%) admitted to hospital</td>
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Study 4- Pain management

Time to Analgesia Average 126.6 minutes (SD 178.4min)

< 60 minutes n=180 29.9% (33min SD 18)

>60 minutes n=422 70.1% (182min SD 206)

Cognitive impairment (n=271) Vs No Cognitive impairment (n=331)
135.2min (SD 140.7) 119.5min (SD 204.1)

PAINAD Vs Routine visual analogue
123 min (SD 123.4min) 128 min (SD 197.1min)
## Analgesic Administered

<table>
<thead>
<tr>
<th>Required Analgesia</th>
<th>Given n=326 (54.3%), Declined 41 (6.8%)</th>
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<tbody>
<tr>
<td>1. Morphine</td>
<td>160 (36.0%)</td>
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<tr>
<td>2. Oxycodone</td>
<td>94 (21.2%)</td>
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<tr>
<td>3. Paracetamol</td>
<td>86 (19.4%)</td>
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<tr>
<td>4. Femoral block</td>
<td>40 (9.0%)</td>
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<tr>
<td>5. Panadeine</td>
<td>35 (7.8%)</td>
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<td>6. Fentanyl</td>
<td>14 (3.2%)</td>
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Study 4- Effectiveness of the PAINAD for people with and without CI

Time to Analgesia for people WITH CI
PAINAD Vs Visual analogue scale
Mean 129.4 (SD 114min) Mean 141.0 (SD 162 min)

Time to Analgesia for people without CI
PAINAD Vs Visual analogue scale
Mean 105.5 (SD 145min) Mean 121.3 (SD 211 min)
Acute pain management in the cognitively impaired older person - can we do better?

Evidence demands that we must do better!