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Pain Screening in the Delirious Patient

UCLA Medical Center
Santa Monica

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PROGRAM PRESENTERS
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Disclosures


No Conflict of Interest

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UCLA Health, Santa Monica




New state-of-the-art medical center transitioned in 2012:

- 266 inpatient beds
- Unique alliance with Orthopedic Hospital, featuring an on-site outpatient clinic
- Critical Care Unit with advanced equipment and 360-degree access
- Patient rooms with family space and comfortable sleeper chairs
- 25 percent of new medical campus devoted to green and open spaces

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Background

- Pain hastens death through physiological means.
- Pain contributes to the development of delirium.
- Evidence is lacking related to pain screening in delirious patients

(Ferrell et al., 2015; Coyle et al., 1994; Morrison et al., 2013; Passero et al., 2003)

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Purpose Statement

To provide psychometric evidence of the efficacy of the Pain Assessment in Advanced Dementia (PAIN-AD) tool for pain screening in a geriatric acute care population with delirium in an urban tertiary medical center.

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Dementia vs. Delirium

- ◆ Dementia:
 - Progressive decline in cognitive functioning
 - Long Term
- ◆ Delirium:
 - Acute fluctuation in mental status.
 - Short Term

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What is Delirium?

"Acute change in consciousness which is accompanied by inattention and either a change in cognition or perceptual disturbance."

(American Psychiatric Association, 2000)


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Types of Delirium

- Hyperactive
- Hypoactive
- Mixed



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Toll of Delirium

- 15% to 30% of elderly patients will have delirium on admission to hospital and up to 56% will develop delirium during their stay
- Delirium Mortality in 1 year is 35-40%
- Delirium affects up to 60-80% mechanically ventilated patients
- US hospitals spend over \$8 billion annually on delirium
- 30% of patients with delirium **STILL HAVE SYMPTOMS 6 months later**

(Wass et al. 2008, Inouye, 2006)

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Detecting and Monitoring Delirium

- Routine Monitoring of Delirium
- The Confusion Assessment Method

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Confusion Assessment Method

- Feature 1: Acute Onset or Fluctuating Course
- Feature 2: Inattention
- Feature 3: Disorganized Thinking
- Feature 4: Altered Level of Consciousness

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graph TD
    F1[Feature 1  
Acute onset and  
fluctuating course] --- And1[And] --- F2[Feature 2  
Inattention]
    F2 --- And2[And] --- F3[Feature 3  
Disorganized thinking]
    F2 --- And2 --- F4[Feature 4  
Altered  
consciousness]
    F3 --- Or[And /Or] --- F4
    
```

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Pain

Affects the Quality of Life

- Poor Concentration
- Restlessness
- Irritability
- Depression

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Toll of Pain

- 100,000,000 Americans suffer from chronic pain
- Cost for the U.S. (in 2010) between \$560 - \$635 billion annually
- 50 – 75% of patients die in moderate to severe pain
- Pain disrupts circadian rhythm

(The American Academy of Pain Medicine, 2016)

Pain in the Cognitively Impaired

- Physical suffering or discomfort caused by illness or injury
- Cognitively impaired patients have an inability to appropriately communicate their discomfort levels
- Often pain is difficult to characterize secondary to memory, language, and speech deficits and consciousness alterations

(Buffman, Hutt, Chang, Craine, & Snow, 2007)

Non-Verbal cues of Pain

- | | |
|--|--------------------------------|
| ➤ Facial Expression | ➤ Mental status changes |
| ➤ Body Movements | ➤ Changes in physical function |
| Guarding | ➤ Physiological changes |
| Pacing | Sweating |
| ➤ Changes in interpersonal interaction | Tachycardia |
| Agitation | Elevated blood pressures |
| Withdrawal | |

Pain Assessed

Pain is assessed and reassessed in non-verbal, pre-verbal patients or in patients with cognitive or hearing impairment using behavioral or physiological signs and symptoms as appropriate at rest and with activity.

Pain Assessment in Advanced Dementia

- Breathing
- Negative Vocalization
- Facial Expression
- Body Language
- Consolability

Pain Assessment IN Advanced Dementia PAINAD

	0	1	2	Score
Breathing <small>(normal tidal volume)</small>	Normal	Occasional Muffled breathing Distal gasps or Respiratory arrest	Notably Abnormal Breathing No gasps or Apnoeic arrest	
Negative Vocalization	None	Occasional moans or groans	Repetitive moans or groans	
Facial Expression	Serene or relaxed	Sad expression Frown	Look of concern or anguish or crying	
Body Language	Relaxed	Tense Distressed looking Fidgeting	Rigid Rigid, convulsed, or stereotyped Movements or staring	
Consolability	No moans or groans	Distressed or resistant to care or touch	Moans or groans distress or resistance to care	

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Critical Care Pain Observation Tool

- Facial Expression
- Body Movement
- Vocalization
- Muscle Tension

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Definition	Items	Observations
Facial expression	Winked, smiled	Not usually sensitive to facial expression
	Neutral	Presence of abnormal facial expression (grimacing, squinting, or staring) may indicate pain, but does not always indicate pain
	Crying	All patients should be assessed every 15-30 minutes using the observation tool
Body movement	Absence of movement or limited movement	Does not assess all of observer's responsibility (presence of patient or observer movement, observation of provider)
	Restlessness	Signs of patient restlessness (sweating, shivering, grimacing, or pulling at lines and tubing) indicate possible pain
	Restlessness/agitation	Signs of patient restlessness (sweating, shivering, grimacing, or pulling at lines and tubing) indicate possible pain
Verbalization	Verbalization or crying	Observer not assesses sleep disturbance
	Crying but not verbalizing	Observer assesses sleep disturbance
Other	Flushing, tachycardia	Observer assesses sleep disturbance
	Flushing or increased heart rate	Observer assesses sleep disturbance
	Flushing, sweating	Observer assesses sleep disturbance
	Crying and verbalizing	Observer assesses sleep disturbance
Muscle tension	Relaxed	Observer assesses sleep disturbance
	Tense, tight	Observer assesses sleep disturbance
	Tense or rigid	Observer assesses sleep disturbance
TOTAL		

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Methodology

- ◆ Observational Case Control Study Design
- ◆ Two trained providers completed pain screening of delirious patients with two tools:
 - PAIN-AD
 - Critical Care Pain Observation Tool (CPOT)

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The Logic Model

Inputs

- Administrative buy-in
- Staff time, motivation

➔

Outputs

- Activities: education
- Who involved: staff, patients

➔

Outcomes

- Psychometrics PAIN-AD
- Improved patient outcomes

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Sample and Setting

- 75 frail elderly patients
- Santa Monica UCLA Medical Center
- Geriatric Cardiac Unit
- > 65 years old, unable to state pain score, delirious

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Study Approval

- Institutional review boards (IRBs) at SMUCLAMC
- The nursing research practice counsel (NPRC) at UCLA approved this project prior to initiation.

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Procedures

- Baseline screening for pain by 2 providers.
- If pain screen (+) intervention provided.
- All patients screened again 30 minutes after baseline assessments.
- Data recorded entered into SPSS version 21 for analysis

Participant Characteristics

"Were cases and controls comparable to one another?"

	Cases		Controls		p
	M (SD)	n (%)	M (SD)	n (%)	
Age	85.3 (9.3)		83.2 (10.7)		.38
Length of Stay, Days	4.7 (5.0)		4.3 (4.5)		.72
Gender					.06
Male		22 (52.4)		10 (30.3)	
Female		20 (47.6)		23 (69.7)	
Actively Infected		17 (41.5)		17 (51.5)	.39
Sedating Meds		8 (19.5)		3 (9.1)	.21
History of Dementia		26 (72.2)		20 (60.6)	.31
History of Pain		26 (61.9)		14 (42.4)	.09
Required Anesthesia		6 (14.3)		6 (18.2)	.65

Scale Psychometrics

"Did the scales show satisfactory internal consistency & reliability?"

	Pain-AD		CPOT	
	Baseline	30-Minute Follow-Up	Baseline	30-Minute Follow-Up
Cronbach's Alpha	.81-.82	.86	.80-.83	.86-.87
Inter-rater Reliability (ICC two-way, random)	.99	.99	.99	.99
30-minute Test Retest Reliability	.49-.56		.42-.46	

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Multi-Trait Matrix

"Are the pain scales and individual items related as expected?"

		CPOT					Pain-AD				
		1	2	3	4	5	6	7	8	9	10
CPOT	1. Total Score										
	2. Facial Expression	.83									
	3. Body Movement	.85	.69								
	4. Vocalization	.66	.59	.49							
	5. Muscle Tension	.77	.50	.62	.32						
Pain-AD	6. Total Score	.90	.79	.70	.70	.65					
	7. Breathing	.59	.39	.54	.54	.42	.66				
	8. Negative Vocalization	.59	.59	.45	.65	.32	.72	.33			
	9. Facial Expression	.74	.80	.63	.58	.45	.73	.40	.53		
	10. Body Language	.75	.60	.60	.44	.68	.76	.41	.40	.46	
	11. Consolability	.64	.63	.42	.60	.40	.76	.31	.55	.52	.50

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2x2 Repeated Measures ANOVA, Pain-AD

"Did pain scores decrease over time for the intervention group?"

- Data supported construct validity of the PAIN-AD
- Significant reductions in pain after intervention found for the pain condition only

Time	Pain Intervention	Control
Baseline	4.24	0.42
30-minute Follow-up	2.61	0.45

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2x2 Repeated Measures ANOVA, CPOT


"Did pain scores decrease over time for the intervention group?"

- CPOT scores showed a near-identical pattern
- Significant reductions in pain after intervention found for the pain condition only

Time	Pain Intervention	Control
Baseline	3.38	0.13
30-minute Follow-up	2.15	0.45

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Implications


The PAIN-AD appears to adequately assess pain in delirious geriatric patients.

Pain screening in delirious geriatric populations is a challenging yet important endeavor.

Attention towards addressing pain is imperative to improving care and saving lives.

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Lessons Learned

- Things do not go as smoothly as anticipated, be prepared to be flexible.
- Identifying a research assistant is troublesome if you have no financial resources.
- IRB
- Time

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What's Next?

- Manuscript for publication in an academic journal.
- Adoption of Pain-AD on acute care units throughout Santa Monica UCLA hospital.
- Reproduce study in a larger care setting.

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Questions



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