A Pain Assessment Tool for the Minimally Conscious State

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Learning Objectives

- Analyse contemporary evidence of pain in the minimally conscious state
- Discuss and debate current methods of pain assessment
- Integrate patient considerations into current pain assessment tools
- Discuss and debate a new pain assessment tool for the minimally conscious state

Perception of pain in the minimally conscious state with PET activation: an observational study

Mélanie Boly, Marie-Elisabeth Faymonville, Caroline Schnakers, Philippe Peigneux, Bernard Lambermont, Christophe Phillips, Patrizio Lancellotti, Andre Luxen, Maurice Lamy, Gustave Moonen, Pierre Maquet, Steven Laureys

Interpretation Cerebral correlates of pain processing are found in a similar network in controls and patients in MCS but are much more widespread than in patients in PVS. These findings might be objective evidence of a potential pain perception capacity in patients in MCS, which supports the idea that these patients need analgesic treatment.

Is the Nociception Coma Scale-Revised a Useful Clinical Tool for Managing Pain in Patients With Disorders of Consciousness?

Camille Chatelle, PhD,†‡ Marie-Daniele De Val, RN, Msc,§‖ Antonio Catano, MD, PhD,¶ Cristo Chaskis, MD,# Pierrette Seeldrayers, MD, PhD,** Steven Laureys, MD, PhD,* Patrick Biston, MD,§ and Caroline Schnakers, PhD††*

The difficulties in treating pain in those patients lead to evident ethical and medical concerns. In acute as in chronic stages, several conditions such as polytraumatic injuries, open wounds, spasticity, arthralgia, ankylosis, tendon retraction, or peripheral injuries are likely to induce pain, especially during care and mobilization.[3,4] Several neuroimaging studies on pain processing in this population suggest that MCS and some VS/UWS patients would be able to perceive pain even if they cannot express it.[5,6] Indeed, these studies reported brain activation in areas involved in the cognitive and emotional processing of pain (such as the anterior cingulate cortex) after a noxious stimulation in a group of MCS and in around 30% of VS/UWS patients. These findings suggest that patients with DOC may retrieve pain perception and support the idea that those patients need analgesic treatment and monitoring. To improve


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Clinical implications of the integrity of the pain matrix
John Whyte
Published: October 06, 2008 • DOI: https://doi.org/10.1016/S1474-4422(08)70220-5
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The scientific study of consciousness presents conceptual and methodological challenges that require inferences about the subjective experiences of the mind, derived from objective observations. The experience of pain in individuals with disorders of consciousness is a special case of this more general problem, but is
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Coma patients might feel pleasure and pain like the rest of us

by Michele Farisco, Uppsala University, ScienceNordic

Credit: ScienceNordic

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Some coma patients 'feel pain'

30

LIFE 7 October 2008

By Andy Coghlan

Brain scans show that the coma patients that are most aware of their environment react to pain as much as healthy people.

Researchers who did the scans in Belgium say it justifies giving pain relief to all patients in this "minimally conscious state" (MCS).

"These findings might be objective evidence of a potential pain perception capacity in patients with MCS, which supports the idea that these patients need painkilling treatment," write Steven Laureys and his colleagues at the Coma Science Group of the Cyclotron Research Centre at the University of Liege in *The Lancet Neurology*.

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People in a vegetative state may feel pain

7

HEALTH 20 February 2013

By Julia Sklar

Journal of Medicine and Philosophy, 34: 6–26, 2009
doi:10.1093/jmp/jhn038
Advance Access publication on February 4, 2009

Brain Damage and the Moral Significance of Consciousness

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Neuroimaging studies of brain-damaged patients diagnosed as in the vegetative state suggest that the patients might be conscious. This might seem to raise no new ethical questions given that in related disputes both sides agree that evidence for consciousness gives strong reason to preserve life. We question this assumption. We clarify the widely held but obscure principle that consciousness is morally significant. It is hard to apply this principle to difficult cases given that philosophers of mind distinguish between a range of notions of consciousness and that is unclear which of these is assumed by the principle. We suggest that the morally relevant notion is that of phenomenal consciousness and then use our analysis to interpret cases of brain damage. We argue that enjoyment of consciousness might actually give stronger moral reasons not to preserve a patient's life and, indeed, that these might be stronger when patients retain significant cognitive function.

Clinical research

Neurotechnological assessment of consciousness disorders: five ethical imperatives

Kathinka Evers, PhD

Disorders of consciousness (DOCs) cause great human suffering and material costs for society. Understanding of these disorders has advanced remarkably in recent years, but uncertainty remains with respect to the diagnostic criteria and standards of care. One of the most serious problems concerns misdiagnoses, their impact on medical decision-making, and on patients' well-being. Recent studies use neurotechnology to assess residual consciousness in DOC patients that traditional behavioral diagnostic criteria are unable to detect. The results show an urgent need to strengthen the development of new diagnostic tools and more refined diagnostic criteria. If residual consciousness may be inferred from robust and reproducible results from neurotechnological communication with DOC patients, this also raises ethical challenges. With reference to the moral notions of beneficence and fundamental rights, five ethical imperatives are here suggested in terms of diagnosis, communication, interpretation of subjective states, adaptation of living conditions, and care.

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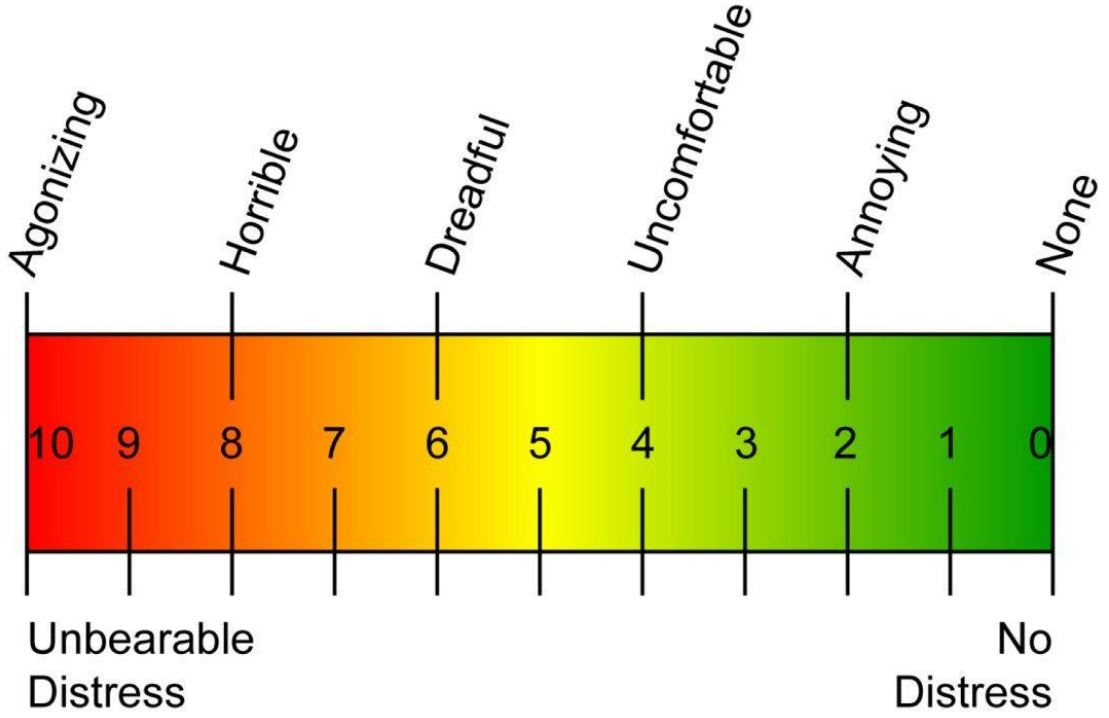
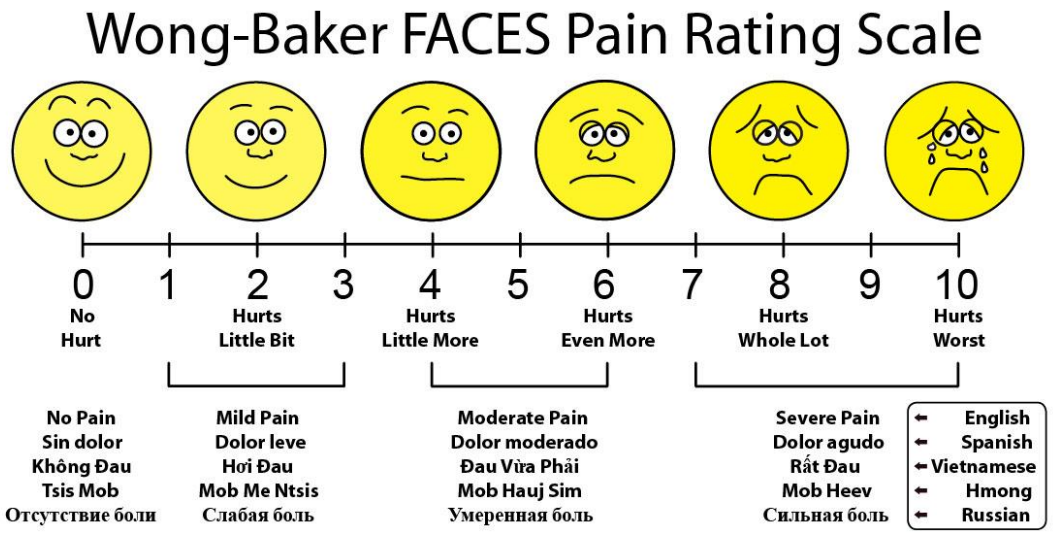
How do we currently assess for Pain?

Considerations

- Age
- Cognition
- Level of Consciousness
- Culture
- Previous experience with pain
- Observations


Agonizing
Horrible
Dreadful
Uncomfortable
Annoying
None
10 9 8 7 6 5 4 3 2 1 0
Unbearable Distress
No Distress


Wong-Baker FACES Pain Rating Scale
0 1 2 3 4 5 6 7 8 9 10
No Hurt
Hurts Little Bit
Hurts Little More
Hurts Even More
Hurts Whole Lot
Hurts Worst
No Pain
Sin dolor
Không Đau
Tsis Mob
Отсутствие боли
Mild Pain
Dolor leve
Hơi Đau
Mob Me Ntsis
Слабая боль
Moderate Pain
Dolor moderado
Đau Vừa Phải
Mob Hauj Sim
Умеренная боль
Severe Pain
Dolor agudo
Rất Đau
Mob Heev
Сильная боль
English
Spanish
Vietnamese
Hmong
Russian

Subjective

Behavioral Pain Scale (BPS) 3-12

Item	Description	Score
Facial expression	Relaxed	1
	Partially tightened (eg, brow lowering)	2
	Fully tightened (eg, eyelid closing)	3
	Grimacing	4
Upper limbs	No movement	1
	Partially bent	2
	Fully bent with finger flexion	3
	Permanently retracted	4
Compliance with ventilation	Tolerating movement	1
	Coughing but tolerating ventilation for most of the time	2
	Fighting ventilator	3
	Unable to control ventilation	4

The Critical Care Pain Observation Tool

Indicator	Description	Score	
Facial expression	No muscular tension observed	Relaxed, neutral	0
	Presence of frowning, brow lowering, orbit tightening, and levator contraction	Tense	1
	All of the above facial movements plus eyelid tightly closed	Grimacing	2
Body movements	Does not move at all (does not necessarily mean absence of pain)	Absence of movements	0
	Slow, cautious movements, touching or rubbing the pain site, seeking attention through movements	Protection	1
	Pulling tube, attempting to sit up, moving limbs/ thrashing, not following commands, striking at staff, trying to climb out of bed	Restlessness	2
Muscle tension Evaluation by passive flexion and extension of upper extremities	No resistance to passive movements	Relaxed	0
	Resistance to passive movements	Tense, rigid	1
	Strong resistance to passive movements, inability to complete them	Very tense or rigid	2
Compliance with the ventilator (intubated patients)	Alarms not activated, easy ventilation	Tolerating ventilator or movement	0
	Alarms stop spontaneously	Coughing but tolerating	1
	Asynchrony: blocking ventilation, alarms frequently activated	Fighting ventilator	2
OR			
Vocalization (extubated patients)	Talking in normal tone or no sound	Talking in normal tone or no sound	0
	Sighing, moaning	Sighing, moaning	1
	Crying out, sobbing	Crying out, sobbing	2
Total, range			0-8

FLACC Scale[2]	0	1	2
1 Face	No particular expression or smile.	Occasional grimace or frown, withdrawn, disinterested.	Frequent to constant frown, clenched jaw, quivering chin.
2 Legs	Normal position or relaxed.	Uneasy, restless, tense.	Kicking, or legs drawn up.
3 Activity	Lying quietly, normal position, moves easily.	Squirming, shifting back and forth, tense.	Arched, rigid or jerking.
4 Cry	No crying (awake or asleep).	Moans or whimpers; occasional complaint.	Crying steadily, screams or sobs, frequent complaints.
5 Consolability	Content, relaxed.	Reassured by occasional touching, hugging or being talked to, distractible.	Difficult to console or comfort.

Behavioral

Parameters	Finding	Points
Systolic blood pressure	Increase <20% of preoperative blood pressure	0
	Increase 20–30% of preoperative blood pressure	1
	Increase >30% of preoperative blood pressure	2
Crying	Not crying	0
	Responds to age-appropriate nurturing (tender loving care)	1
	Does not respond to nurturing	2
Movements	No movements (relaxed)	0
	Restless, moving about in bed constantly	1
	Thrashing (moving wildly)	2
	Rigid (stiff)	2
Agitation	Asleep or calm	0
	Can be comforted to lessen agitation (mild)	1
	Cannot be comforted (hysterical)	2
Complains of pain	Asleep	0
	States no pain	0
	Cannot localize pain	1
	Localizes pain	2

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	Unable to control ventilation	4

Objective

Something else?

Validity

Validity refers to the ability of an instrument to measure exactly what it is supposed to measure and nothing else. For example with any pain assessment instrument, a valid instrument would measure pain and only pain, not any other symptoms such as anxiety or depression

- Painful events/conditions
- Expert Opinion
- Unconscious/autonomic responses to pain
- Changes in status (Vital signs/ventilation synchrony)

Reliability

Generally speaking, reliability is the degree of consistency and repeatability of the scores on an instrument.

- Tool was used by groups of 3 nurses on the same patient
- 12 Patients recruited
- Reliability of 88%

Absence of Awareness			
Category	**0**	**1**	**2**
Heart Rate	Heart Rate EWS Score is unchanged	Heart Rate EWS Score is increased by 1	Heart Rate EWS Score is increased by 2
Systolic BP	Systolic BP EWS Score is unchanged	Systolic BP EWS Score is increased by 1	Systolic BP EWS Score is increased by 2
Respiratory	Respiratory EWS Score is unchanged	Respiratory EWS Score increased by 1	Respiratory EWS Score increased by 2
Ventilator Synchrony	Synchronous with ventilator	Mild asynchrony with ventilator	Severe asynchrony with ventilator
Presence of Painful Conditions	None	Mild skin breaks	Marked skin breaks, arthritis, contractures

Limitations

- Preliminary study
- Small sample size
- Non-randomised
- No standard (EEG EPs, MRI)

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Thank you