

Anosognosia: clinical and ethical considerations
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- Persons who present with Anosognosia, by nature of their brain disorders, have from poor to unreliable judgments regarding themselves and their healthcare needs.
- The frequency of Anosognosia for hemiplegia was 21% for patients examined within the first week of their stroke.
- The presence of Anosognosia has been repeatedly linked with poor functional outcome, even after spontaneous recovery
 - Four ‘causes’ of Anosognosia
 1. Lesions occur in brain areas that are strongly associated with the functional capacity, for which the individual is not aware
 2. The patient appears to have the cognitive capacity to evaluate feedback given regarding their functional limitations
 3. The patient appears to discount any reasonable evidence regarding his or her condition
 4. The patient remains apparently indifferent to his or her condition
- Clinical Considerations for rehabilitation
 - The presence of Anosognosia negatively influences the process and outcome of NeuroRehabilitation
 - Anosognosia in TBI patients related to poor adherence to rehabilitation activities and difficulties with the establishment of a working alliance with therapists

The association between awareness deficits and rehabilitation outcome following acquired brain injury
 Tamara Ownsworth and Linda Clare (2006)

- Individuals with awareness and deficits may demonstrate
 - Poor motivation for therapy,
 - Resist support or treatment recommendations,
 - Set unrealistic goals, and
 - Develop fewer compensatory strategies.

Study	Sample Characteristics	Rehabilitation Program	Findings
Fordyce and Reuche (1986)	28 individuals with ABI	6 month interdisciplinary holistic program	Individuals with persisting awareness deficits became more distressed after rehabilitation. Good self awareness at pre-intervention was associated with greater emotional adjustment at post-intervention but not with improved psychosocial functioning.
Giallanella and Mattioli (1992)	45 individuals with left hemiplegia 1 month post-stroke	Functional Rehabilitation 5h per week over 3-6 months	Individuals with Anosognosia for hemiplegia had significantly poorer functional outcomes than other groups and were less likely to experience improvement on functional and motor indices.
Pedersen et al. (1996)	566 individuals with stroke	Acute care and multidisciplinary rehab at a stroke unit	Anosognosia significantly predicted ADLs, discharge to independent living, and mortality after controlling for demographic and neurological variables.

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Study	Sample Characteristics	Rehabilitation Program	Findings
Sherer, Bergloff, Levin, High, Oden, and Nick (1998)	66 individuals with TBI admitted to post-acute rehabilitation	Post-acute brain injury rehab program of varying length	More acute awareness at admission to rehabilitation was associated with better employment outcomes at post-discharge follow-up after controlling for pre-injury, and cognitive variables.
Malee et al. (2000)	114 individuals with TBI or other causes of ABI diagnoses	A medical/vocational case coordination system based upon a comprehensive integrated approach with varying output from multiple services	Awareness of deficits at pre-intervention was not related to level of vocational independence at initial placement or one year follow up.
Malec and Moessner (2000)	62 consecutive graduates with TBI or other ABI from the Mayo brain injury outpatient program	A comprehensive day treatment program of varying length	Pre-intervention awareness ratings correlated with vocational outcome at post-intervention but not at 1-year follow up. Pre-intervention awareness of deficits was not related to other outcomes. Awareness change scores were unrelated to distress ratings.
Hartman-Maeir et al. (2002)	60 individuals with stroke	Hospital-based stroke rehabilitation	In the RH group only, individuals classified as 'unaware' had significantly poorer ADL and safety outcomes at discharge after controlling for basic cognitive skills and demographic factors. Awareness of deficits was not correlated with outcome at one year follow up.

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Study	Sample Characteristics	Rehabilitation Program	Findings
Sherer et al. (2003)	129 individuals admitted to an inpatient rehabilitation unit	Inpatient rehab program	Individuals with more accurate self-awareness were more likely to be rated as employable at discharge than those with less accurate self-awareness. Awareness of deficits predicted employability.
Fischer et al. (2004)	63 individuals with ABI	Outpatient rehabilitation program	Individuals with more accurate awareness had better functional outcomes. However, higher clinician ratings of awareness were associated with poorer rehabilitation outcomes.
Ownsworth and McFarland (2004)	28 individuals with long-term TBI or ABI	A 16 week group therapy program	Degree of change in awareness was associated with change in social interaction and emotional well-being, but not with overall psychosocial, cognitive, or communication skills.
Noé et al. (2005)	36 individuals with TBI	A multi-disciplinary 6-month program	Both self-awareness groups improved on most measures between pre- and post-intervention assessments. The low self-awareness group improved to a greater extent than the high self-awareness groups.

Clinical Recommendations

Ownsworth and Clare (2006)

1. Awareness deficits represent a probable barrier to the client's own goals or personally valued outcomes.
1. Awareness deficits pose a significant safety risk which cannot be otherwise managed effectively through task-specific learning, behavioral modification, or environmental restructuring.
1. The likelihood of heightened emotional distress associated with increased awareness is relatively low due to positive social support and adaptive coping strategies. Furthermore, the experience of heightened emotional distress is likely to be relative short-lived and less problematic in the long-term than persisting awareness deficits.
1. There is scope to tailor treatment according to an assessment of neurocognitive, psychological, and socio-environmental factors underlying awareness deficits.
1. The rehabilitation context and support network affords the necessary scope and resources for targeting the development of awareness and closely monitoring the individuals' emotional well-being and coping reactions.

Executive function and metacognitive self-awareness after severe traumatic brain injury

Umberto Bivona, Paola Ciurli, Carmen Barba et al. (2008)

- Divided awareness into...
 - 1. Intellectual awareness – patient's ability to describe their deficits or impaired functioning
 - 2. Emergent awareness – patient's ability to recognize their difficulties as they are happening.
 - 3. Anticipatory awareness – patient's ability to predict when difficulties will arise because of their deficits.
- Anosognosia deficits were evaluated according to the discrepancy between self rating and family rating scores on the awareness questionnaire (AQ)
- Decreased metacognitive self-awareness is significantly correlated with increased problems in some components of executive system.
- Data indicates that Anosognosia is more impaired with respect to cognitive and social-emotional components and less impaired for physical deficits.
- The importance of integrating an overall assessment of cognitive functions with a specific evaluation of self-awareness and of treating self-awareness contextually in a structured comprehensive rehabilitation program
- The inclusion of self-awareness in a multi-disciplinary rehabilitation program might enhance patients' self-awareness and participation in cognitive and functional tasks.

Agitation after Traumatic Brain Injury: Considerations and treatment options

Lisa A. Lombard and Ross D. Zafonte (2005)

- Agitated patients may resist direct care, be disruptive in the unit, or even pose a physical risk to themselves, family, or staff.
- Can include inappropriate vocalization, intolerance of medical management or equipment, and directed or diffuse aggressive behaviors.
- Agitation does seem to correlate with lower cognitive status.
- Treatment
 - Behavioral Modification: ICAR model
 - Information – Whereby patients or families, or both, are provided with objective information regarding the patient’s cognitive status
 - Contingencies – patients may suffer ramifications from engaging in undesirable behaviors
 - Improving self-awareness – various techniques are suggested to encourage self-monitoring or performance
 - Relationship – the psychotherapeutic relationship is used in conjunction with cognitive rehabilitation
- Previous research on medication treatment for agitation

Medication Class	Agent	Study	Outcome
Anticonvulsants	Valproic Acid	Wroblewski et al., 1997	Decreased aggression 1-2 days after initiation of the medication
		Monji et al., 1999	Improved behavioral control
		Chatham-Showalter et al., 2000	90% of sample responded with decreased agitation within 7 days
		Dikmen et al., 2000	No significant differences in performance in neuropsychological tests
	Carbamazepine	Chatham-Showalter, 1996	Rescued combativeness within 4 days of administration
		Azouvi et al., 1999	Good improvement seen in 5 cases, modest in 3, no response seen in 2
	Lamotrigine	Pachet et al., 2003	Decrease in aggressive behaviors, improved neurobehavioral functioning

Antidepressants	Sertraline	Kant et al., 1998	Reduced aggression and irritability, no effect on depression
		Fann et al., 2000	Decreased depression and aggression
		Meythaler et al., 2001	No difference noted in cognition, alertness or agitation
	Paroxetine and citalopram	Muller et al., 1999	Both groups experienced improvements in symptoms
Antipsychotics	Droperidol	Stanislav and Childs, 2000	Time to calming shorter with droperidol in comparison with other medications
	Methotrimeprazine	Maryniak et al., 2001	2 cases of extrapyramidal symptoms, longer lengths of stay with treated group
	Risperidone	Silver et al., 2003	Reduced restlessness, allowing for wound healing
	Various	Stanislav, 1997	Improvement in performance after discontinuation of antipsychotics
Lithium		Bellus et al., 1996	Decreased aggression and need for behavioral control techniques
Multiple medications	Citalopram and carbamazepine	Perino et al., 2001	Reduction in depression and behavioral disturbance
	Multiple	Fleminger et al., 2003	Beta-blockers have the best evidence for efficacy in the treatment of agitation in TBI patients.

Identification of Undesirable Behaviors

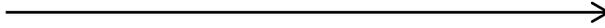


Consideration of possible differential diagnosis:

- Drug Withdrawal
- Infection
- Pain
- Hypoxia
- Seizure Disorder



Consideration of environmental issues



- Low stimulation environment
- Reduction of physical discomfort
- Reduction of lines and direct physical restraints
- Reorientation
- Scheduled toileting program



Assure good sleep cycle regulation



Consider trial of trazadone



Medication Management

- Minimizing benzodiazepines and typical antipsychotic agents as possible



Anticonvulsants

- Valproic Acid (monitor liver function)
- Tegretol (monitor sodium levels)

And/or

Neurostimulants
(i.e. Amantadine)

And/or

Beta-blocker, especially if
hyperadrenergic



Reassessment with objective measures



Consider use of secondary agents

- Atypical antipsychotics
- SSRI
- Buspirone
- Lithium

Agitated Behavior Scale

Behaviors scored as:

1. Absent: the behavior is not present
2. Present to a slight degree: the behavior is present but does not prevent the conduct of other, contextually appropriate behavior.
3. Present to a moderate degree: the individual needs to be redirected from an agitated to an appropriate behavior, but benefits from such cueing.
4. Present to an extreme degree: the individual is not able to engage in appropriate behavior due to the interference of the agitated behavior, even when external cueing or redirection is provided.

Behaviors Observed:

1. Short attention span, easy distractibility, and inability to concentrate
2. Impulsive, impatient, low tolerance for pain or frustration
3. Uncooperative, resistant to care, demanding
4. Violent and/or threatening violence towards people or property
5. Explosive and/or unpredictable anger
6. Rocking, rubbing, moaning, or other self-stimulation behavior
7. Pulling at tubes, restraints, etc.
8. Wandering from treatment areas.
9. Restlessness, pacing, excessive movement
10. Repetitive behaviors, motor and/or verbal
11. Rapid, loud, or excessive talking
12. Sudden changes of mood
13. Easily initiated or excessive crying and/or laughter
14. Self-abusiveness, physical and/or verbal

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