

## Challenges of Pain Treatment in Severe Cognitive Impairment

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The standard method of assessing efficacy of pain treatment is to ask for the patient's self-assessment of his/her pain level and to adjust treatment based on this self-assessment. This measure of pain is built on the assumptions that the patient is able to speak and has sufficient cognitive function to self-assess and report pain levels. The treatment of pain becomes a serious challenge when the patient has cognitive impairment that interferes with speech or the ability to communicate pain levels. There are no current biological markers available to reliably assess pain [1]. This means that there can be no pain rating without a subjective report of pain by the patient [2].

In their classical work, Melzack and Wall [3] defined pain as having sensory-discriminative, affective-motivational, and cognitive-evaluative components. These components are modulated by the lateral pain system and the medial pathway. Dementia of Alzheimers type seems to affect the medial pain system but not the lateral system [4,5]. These changes would tend to imply that the patient with severe cognitive impairment from Alzheimers disease would have pain but not be able to report the pain. Clinicians are faced with a quandary as to how to evaluate pain levels and treatment effectiveness in these patients. Several approaches to understanding pain in people with severe cognitive impairment have been tested with mixed results.

One approach has been to attempt to develop behavioral markers that could serve as proxy measures of pain in patients with severe cognitive impairment. To date, these approaches have not been promising except in mild and moderate cognitive impairment [6]. This may be because severe cognitive impairment blunts these behaviors.

Another approach has been to attempt to develop pain scales that would be valid and reliable in people with cognitive impairment. A review of 10 pain behavior instruments [6] did not identify any that were acceptable for clinicians to use in patients with patients with severe cognitive impairment. Currently, no behavioral instruments have been created with acceptable reliability and validity for use in patients who are non-verbal or who have severe cognitive impairment.

Do patients with severe cognitive impairment have pain? We don't have the ability to answer this question until recently. With the development of functional magnetic resonance imaging (fMRI) researchers for the first time to determine if the pain pathways in

the brain remain intact as severe cognitive impairment progresses. Preliminary work shows that the lateral and medial pain pathways remain intact in persons with dementia of Alzheimer's type. This would seem to indicate that these patients have sensory and emotional pain perception but not be able to express this pain [7-9].

Much more work must be completed to better understand the effects of cognitive impairment on pain pathways in patients particularly those with severe impairment. Clinicians cannot rely on existing pain measurements to accurately assess pain in this patients nor the response of these patients to pain treatment. We must assume that patients with severe cognitive impairment do have pain and treated appropriately even when they cannot report their pain.

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