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Increased Experimental Pain Sensitivity in Chronic Pain Patients Who Developed Opioid Use Disorder

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Abstract

Objective: Although the great majority of individuals who take opioids for chronic pain use them appropriately and to good effect, a certain minority will develop the problematic outcome of opioid use disorder (OUD). Characteristics associated with the development of OUD in individuals with chronic pain have been described; however, relatively unexplored is how sensitivity to pain is associated with OUD outcomes.

Materials and methods: We examined for differences in response to static and dynamic experimental pain stimuli between individuals with chronic nonmalignant pain who developed OUD after starting opioid therapy (n=20) and those on opioid therapy who did not (n=20). During a single experimental session, participants underwent cold pressor and quantitative sensory testing pain assays, and objective and subjective responses were compared between groups; the role of pain catastrophizing in mediating pain responses was examined.

Results: Results suggested that both groups of opioid-dependent patients were similarly hyperalgesic to the cold pressor pain stimulus, with nonparametric testing revealing worsened central pain sensitization (temporal summation) in those who developed OUD. Significant group differences were evident on subjective ratings of experimental pain, such that those who developed OUD rated the pain as more severe than those who did not. Pain catastrophizing was unrelated to pain responses.

Discussion: Despite the small sample size and cross-sectional design, these findings suggest that experimental pain testing may be a novel technique in identifying patients with chronic pain likely to develop OUD, in that they are likely to evidence exacerbated temporal summation and to rate the associated pain as more severe.

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