Sensory processing and anxiety in central sensitisation pain

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Abstract

Background: Patients with non-specific chronic low back pain (NSCLBP) and central sensitisation (CS) have been shown to exhibit sensory processing alterations, somatosensory hypersensitivity and differences in the brain's emotional networks. The concept that the extent of CS pain might be related to the patient's own trait sensory processing and anxiety characteristics has not yet been explored. This presentation will cover the background of CS pain, sensory processing, particularly trait sensory sensitivity and its relationship to trait anxiety. There are overlapping physiological mechanisms in sensory sensitivity and the individual behavioural responses to sensory stimuli in populations with CS, anxiety and abnormal sensory processing profiles. A pilot study designed to explore this topic will also be presented.

Pilot Study Objectives: To establish concept plausibility by 1) exploring the range of CS in NSCLBP patients and 2) determining potential relationships between CS pain, trait anxiety and trait sensory processing profiles

Study Design: Cross sectional observation study

Methods: Questionnaires were administered to N=21 NSCLBP in physiotherapy outpatient clinics in New Zealand. Excluded were those with predominantly neuropathic or nociceptive pain.

Outcome measures: Central Sensitisation Inventory (CSI), Adolescent/Adult Sensory Profile, State/Trait Anxiety Inventory (Trait section) and the Marlow Crown Sociable Desirability Questionnaire.

Results: 76% **(**N=16/21) of respondents were classed as having CS pain, scoring ≥40 on the CSI. Of those with CS pain, higher CSI scores were associated with a) abnormal trait sensory processing profiles; b) higher trait anxiety sub-types and c) minimal low trait anxiety. Higher trait anxiety scores were associated with higher Sensory Sensitivity and Low Registration sensory profile scores and lower Sensation Seeking sensory profile scores.

Conclusion: This study is the first to evaluate pre-existing trait characteristics in association with CS pain and has provided sufficient concept plausibility. These preliminary results suggest that the extent of CS pain in patients with NSCLBP may be associated with abnormal trait sensory processing and trait high anxiety characteristics.