

Autonomic Nervous System Function and Central Pain Processing in People With Frozen Shoulder. A Case-control Study

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OBJECTIVES: The pathophysiology of a frozen shoulder (FS) is thought to be related to chronic inflammation. Chronic inflammation may disturb the immune system and consequently the nervous system as part of an overarching system. The aim of this study was to determine the presence of disturbed autonomic nervous system function and altered central pain processing (CPP) in patients with FS. Secondly, the presence of psychological variables (catastrophizing and hypervigilance) and self-reported associated symptoms of altered CPP in patients with FS were investigated.

METHODS: Patients with FS and healthy controls completed the Composite Autonomic Symptom Score (autonomic function) and underwent quantitative sensory testing to assess tactile sensitivity (ie, allodynia), pressure pain thresholds (PPTs, ie, hyperalgesia), temporal summation of pain, and Conditioned Pain Modulation (CPM). Psychological issues were explored with the Pain Catastrophizing Scale and the Pain Vigilance and Awareness Questionnaire, and self-reported symptoms associated with altered CPP were determined with the Central Sensitization Inventory.

RESULTS: Thirty-two patients with FS and 35 healthy controls were analyzed in the study. Patients with FS showed more self-reported autonomic symptoms and symptoms of altered CPP, higher levels of pain catastrophizing and hypervigilance, and are more sensitive to tactile touches and mechanical pressure compared with controls.

DISCUSSION: On the basis of the effect sizes, between-group differences in allodynia, hyperalgesia, catastrophizing, and hypervigilance were clinically relevant, but only local allodynia, hyperalgesia, catastrophizing, and hypervigilance were statistically different. Therefore, obvious altered CPP was not present at the group level in patients with FS compared with controls.