

## **Evaluation of Using the Sphygmomanometer Test to Assess Pain Sensitivity in Chronic Pain Patients vs. Normal Controls**

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Long term opioid usage can lead to opioid-induced hyperalgesia (OIH), thus clinicians utilizing opioid treatment for patients in pain are often challenged to identify the source of pain their patients experience. OIH diagnosis is further complicated by limited, time consuming, and costly diagnostic methods. A sphygmomanometer test (a sensory test that measures an individual's nociceptive response to pressure using a standard blood pressure cuff) has recently been established to test pain sensitivity. We examined the feasibility of using the sphygmomanometer test with chronic pain patients. After obtaining informed consent, healthy controls and chronic pain patients (including patients on a regimented opioid therapy) underwent four pain sensitivity tests: a pressure algometer test, a cold pressure test, a heat sensitivity test, and a sphygmomanometer test. Participants then completed four established surveys for measuring depression (PHQ9), anxiety (GAD7), fatigue (Fatigue Severity Scale), and pain catastrophizing (Pain Catastrophizing Scale). Thirty-two controls and 10 chronic pain patients were recruited and tested. Although pain patients had significantly higher levels of depression, anxiety, fatigue, and pain catastrophizing, as well as reported pain scores ( $p \leq 0.001$  for all), no significant differences in pain sensitivity were detected via any of the pain sensitivity tests. In the control group, results from all pain sensitivity tests including the sphygmomanometer test are significantly correlated with each other ( $p < 0.001$  for all). Alternatively, in the patient group, significant correlations were only detected between the previously established heat and pressure sensitivity tests and between the cold and the pressure sensitivity tests ( $p < 0.05$  for both). Our results indicate the utility of the sphygmomanometer test in testing pain sensitivity in non-chronic pain sufferers. Multiple pain sensitivity tests that assess various sensory modalities are necessary to evaluate pain sensitivities in chronic pain patients. Supported by the UNE COM Peter Morgane Research Fellowship.