The Role of Ultrasound in Assessing the Efficacy of Cervical HVLA

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Context: High Velocity Low Amplitude (HVLA) manipulation uses a localized, rapid movement of a dysfunctional joint to restore physiological motion. Ultrasonography has recently been used to examine the effectiveness of HVLA in the lumbar spine. This study examines the ability of ultrasonography to assess the effects of HVLA in the cervical spine.

Objectives: To evaluate the ability of ultrasonography to assess cervical HVLA.

Methods: This prospective randomized study was conducted at NYIT-COM from July-October 2014. 41 subjects were randomized to receive either HVLA or a vault hold. Two physicians independently confirmed the diagnosis of a cervical somatic dysfunction (SD) and articular pillar (AP) rotation was measured using ultrasonography. 19 subjects received HVLA and 22 subjects received a vault hold. The cervical AP rotation was re-measured after intervention. The physicians remained blinded and re-assessed the SD. Alpha was set at 0.05. Changes in cervical AP rotation were compared using paired sample t-tests.

Results: Physician reassessment of SD confirmed SD resolution in 19/19 HVLA subjects and 0/22 control subjects. There was no significant change in ultrasound-measured AP rotation for the HVLA group (M=.07056 cm, p=.207) or control group (M=.03091 cm, p=.108).

Conclusion: Despite a palpatory resolution of the SD, ultrasound was not able to determine a significant change in AP rotation in the HVLA group compared to the control group. Ultrasound may not be the most accurate tool for assessing HVLA in the cervical spine. Additional studies should evaluate the role of ultrasonography in assessing other somatic dysfunctions and effects of other treatment modalities.