

“Role of Diagnostic Testing in the Assessment and Management of a Patient with Juvenile Idiopathic Arthritis and Carpal Tunnel Syndrome”

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**Juvenile idiopathic arthritis (JIA) is a type of rheumatoid arthritis (RA) that affects children under sixteen. It is a diagnostic classification made by a physician when a patient presents with symptoms of pain, swelling, stiffness, and fever or signs or symptoms of systemic inflammation. Laboratory blood analyses used to assist with the diagnosis of JIA include measurement of erythrocyte sedimentation rate (ESR), C-reactive protein, anti-nuclear antibody, rheumatoid factor, and cyclic citrullinated peptide (CCP). The use of ultrasound as a diagnostic tool to assist with the evaluation of JIA has recently been investigated demonstrating a positive Power Doppler (PD) signal in patients with JIA in clinical remission can predict exacerbation.**

**Carpal tunnel syndrome (CTS) is a clinical condition when a patient presents with a collection of signs and symptoms including radiating pain in the wrist and hand, paresthesia or anesthesia in the volar surface of the thumb, index, middle, and lateral ring fingers, weakness of thumb abduction, opposition, and finger grasp strength, with symptoms typically worse at night and exacerbated by repetitive motions of wrist flexion. A common cause of CTS includes bony anomalies of the carpal bones. One of the most common and well-established diagnostic tests used in the evaluation of patients with suspected CTS are electrodiagnostic studies, which include nerve conduction studies (NCS) and needle electromyography (EMG). NCS parameters used to determine the functional integrity of the median nerve at the wrist include distal sensory latency (DSL), distal motor latency (DML), sensory nerve action potential (SNAP), and compound muscle action potential (CMAP). EMG parameters used to determine the neuronal integrity of muscles innervated by the median nerve distal to the wrist include the presence of spontaneous potentials and analysis of the shape, amplitude and duration of motor unit action potentials (MUAP). Recently, neuromusculoskeletal ultrasound (NMSKUS) has been found to be an effective method at evaluating the structural integrity of the median nerve at the wrist in patients with suspected CTS. Parameters used in the NMSKUS assessment of the structural integrity of the median nerve at the wrist include the cross-sectional area (CSA) and the linear dimensions of the nerve.**

**This case report will review the EDX and NMSKUS assessment of a patient diagnosed with JIA and suspected CTS. EDX & NMSKUS data and interpretation will be presented along with a review of the literature on these conditions and discussion of evidenced-based treatment interventions.**

Keywords: juvenile idiopathic arthritis, carpal tunnel syndrome, electrodiagnostic studies.

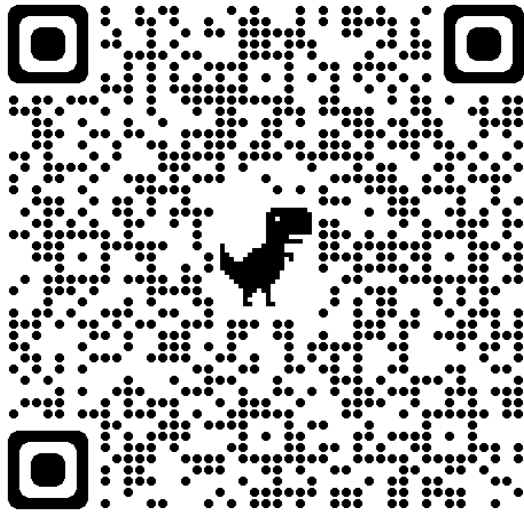


Figure 1:

