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Editorial

Lateral Thinking in Manual Therapy: The Epitome of Cervical Lateral Glide Technique

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Introduction

As Indian Journal of Medical and Health Sciences is stepping into its second year of publication and scientific dissemination, this editorial was aimed to provide a highlight on cervical lateral glide technique as a manual therapy intervention with an evidence-informed update from pubmed (www.pubmed.com). The "thinking out of the box" principle and its application in manual therapy evaluation and treatment warranted use of advanced techniques in addition to other commonly used ones which were targeted either as tissue-specific or as impairment-specific therapeutic goals.

Definition of Manual Therapy

The International Federation of Orthopaedic Manipulative Physical Therapists (IFOMPT), the renowned subgroup of World Confederation of Physical Therapy (WCPT) defined manual therapy techniques as:

"Skilled hand movements intended to produce any or all of the following effects: improve tissue extensibility; increase range of motion of the joint complex; mobilize or manipulate soft tissues and joints; induce relaxation; change muscle function; modulate pain; and reduce soft tissue swelling, inflammation or movement restriction." (Adapted from http://www.ifompt.com/).

According to the American Academy of Orthopaedic Manual Physical Therapists (AAOMPT) Description of Advanced Specialty Practice (DASP), Orthopedic Manual Physical Therapy (OMPT) was defined as:

"OMPT is any 'hands-on' treatment provided by the physical therapist. Treatment may include moving joints in specific directions and at different speeds to regain movement (joint mobilization and manipulation), muscle stretching, passive movements of the affected body part, or having the patient move the body part against the therapist's resistance to improve muscle activation and timing. Selected specific soft tissue techniques may also be used to improve the mobility and function of tissue and muscles."(Adapted from) http://www.aaompt.org/publications/AAOMPT_2008 _MT_DASP_FINAL.doc).

Historically, Orthopaedic Manual Physical Therapy (OMPT) evolved from an anecdotal (concept-based) approach to an evidence-informed (mechanism-based) approach. Over the years, thrust and non-thrust manipulation and mobilization techniques were replaced by more gentler and more refined mobilizations with movements and neurodynamic techniques.

Spine as a source of extremity symptoms and manual interventions aimed at cervical spine for treating patients with upper extremity symptoms was practised over the years. Conventionally though, spinal mobilization revolved around the Maitland's concept of vertebral manipulation that involved passive physiological intervertebral mobilizations (PPIVMs) and passive accessory intervertebral mobilizations (PAIVMs).

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One of the manual therapy techniques that combined physiological with accessory movements which was specifically indicated for spine-related upper extremity symptoms is the Cervical lateral glide (CLG) technique. As per original description by Robert Elvey, CLG was defined as a specific manual therapy hands-on technique that produces lateral translation of affected spinal segment which was usually to be performed in a direction away from the side of cervicobrachial symptom (Elvey, 1986).

Mechanics of CLG

Vicenzino et al (1999b) investigate the specificity of linear and angular displacement, peak velocity and frequency of oscillation of the CLG versus Lateral flexion (LF) technique in 8 asymptomatic subjects in a within-subject experimental design. CLG produced characteristic ipsilateral displacement (both linear and angular with a frequency of 1.255 Hz) than the LF technique predominantly at its region of application.

Physiology of CLG

Vicenzino et al (1999) investigated the perceived level of stress and pain intensity before, during and after CLG application in 24 asymptomatic subjects in their double-blind, placebo-controlled, single-subject experimental design (treatment, placebo or control technique). Without pain provocation, CLG produced reduction of stress levels over course of treatment which indicated that dorsal periaqueductal grey region was not responsible for the initial effects of CLG, because stress and pain do not appear to play a role in activating this system in asymptomatic subjects.

Neurophysiology of CLG

Vicenzino et al (1998) investigated the hypothesis for manipulative therapy's treatment-specific initial hypoalgesic and sympathoexcitatory effects by activation of a descending pain inhibitory system. The authors studied 24 subjects with lateral epicondylalgia in their randomized, double-blind, placebo-controlled, repeated-measures study of the initial effect of CLG treatment compared to placebo and control interventions. CLG produced hypoalgesic and sympathoexcitatory changes significantly greater than those of placebo and control, and a significant positive correlation existed between the latencies of manipulation-induced hypoalgesia and sympathoexcitation suggesting a central control mechanism.

Neurodynamics of CLG

Brochwicz et al (2013) investigated longitudinal median nerve excursion in the arm in 27 healthy participants by comparing two techniques-cervical lateral glide (CLG) and cervical lateral flexion (CLF). Ultrasonographic findings showed that movements of median nerve during CLG were larger than during CLF.

Evidence for Regional Interdependence

Effect on shoulder

McClatchie et al (2009) in their randomized, blinded, placebo-controlled, cross-over trial examined the immediate effects of cervical lateral glide mobilizations on pain intensity and shoulder abduction painful arc in 21 subjects with shoulder pain. Two sessions of CLG and placebo were administered and pain intensity using a visual analog scale (VAS) and painful arc were assessed prior to and following intervention. Reductions in both painful arc and pain intensity were found which were statistically significant, which suggested mobilization of asymptomatic cervical spine could reduce shoulder symptoms.

Cervicobrachial Pain Syndrome (CBPS)

Coppieters et al (2003) studied the immediate effects of CLG compared to that of therapeutic ultrasound in 20 patients with sub-acute neurogenic CBPS by measuring range of elbow extension (EE), symptom distribution (SD), and pain intensity (PI) during the median nerve provocation testing. The mobilization group showed significant increase in EE, decrease in area of SD and decreased PI.

Coppieters et al (2003b) studied shoulder girdle elevators force generation during median nerve provocation testing and changes following CLG mobilization versus therapeutic ultrasound in 20 patients with neurogenic CBPS in their single-blind randomized clinical trial. The study found aberrant force production in involved side compared to uninvolved side which was normalized after CLG treatment compared to control intervention.

Cowell and Philips (2002) evaluated the effectiveness of CLG in a 44-year-old woman with an 8-month history of neurogenic CBPS who had abnormalities of neural tissue mechanosensitivity and C5/6 disc pathology on MRI. Upon a 4-week pre-assessment, 4-week treatment and 2-week home exercise, beneficial improvements were reported for pain, functional disability as well as cervical and shoulder mobility which were maintained over the home exercise phase and at 1-month follow-up.

Whiplash-Associated Disorders (WAD)

Sterling et al (2010) investigated the immediate effects of CLG technique versus manual contact intervention on measures of central hyperexcitability (pressure pain thresholds, thermal pain thresholds, nociceptive flexion reflex (NFR) responses (threshold and pain intensity)in a randomised, single blind, clinical trial of 39 participants with chronic WAD.The study found that CLG produced greater increase in NFR threshold alone compared to manual contact.

Summary and Conclusion

CLG produced greater Ipsilateral vertebral translation than the lateral flexion mobilization (LFM) in asymptomatic subjects; produced reductions in stress levels in asymptomatic subjects; produced greater longitudinal median nerve excursion than LFM in asymptomatic subjects; produced greater reductions in pain intensity and painful arc in subjects with shoulder pain; produced beneficial therapeutic effects such as reductions aberrant force in shoulder girdle muscle activation, pain intensity, range of motion, symptom distribution and neurodynamic responses in people with CBPS, and also produced greater NFR in people with WAD.

There is need for more controlled studies comparing combination therapies administered upon clinical reasoning to identify specific subgroups among people with neck pain who would be likely to benefit from CLG techniques.

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Conflicts of interest

None identified and/or declared.

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