

Role of Mesotherapy in Chronic Cervical Pain due to Cervical Spondylosis

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(... رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ

الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَى وَالِدَيَّ

وَأَنْ أَعْمَلَ صَالِحاً تَرْضَاهُ

وَأَدْخِلْنِي بِرَحْمَتِكَ فِي

عِبَادِكَ الصَّالِحِينَ)

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List of Abbreviations

<i>Abbrev.</i>	<i>Full term</i>
AIDS	: Acquired immunodeficiency syndrome
ALL	: Anterior longitudinal ligament
ANA	: Antinuclear Antibody
AP	: Anterior posterior
ATP	: Adenosine triphosphate
CBC	: Complete blood count
CNS	: Central nervous system
COX-1	: Cyclooxygenase-1
COX-2	: Cyclooxygenase-2
CSF	: Cerebrospinal fluid
CSM	: Cervical spondylosis myelopathy
CT	: Computed tomography
CVLI	: Chronic venous lymphatic insufficiency
CX	: Cervical
DMPP	: Descending Modulatory pain pathways
ESR	: Erythrocyte Sedimentation Rate
FMRI	: Functional Magnetic resonance imaging
GABA	: Gamma-aminobutyric acid
HF	: High-frequency
IM	: Intramuscular
LF	: Low-frequency
LIT	: Intradermal therapy
MEP	: Motor evoked potentials
MM	: Millimetres
MP	: Methylpredinose
MPQ	: McGill Pain Questionnaire
MRC	: Medical Research Council

List of Abbreviations (Cont ..)

<i>Abbrev.</i>	<i>Full term</i>
MRI	: Magnetic resonance imaging
NAIDs	: Non-steroidal anti-inflammatory drugs
NDHN	: Nociceptive dorsal horn neurones
NDI	: Neck Disability Index
OFP	: Edematous fibrosclerotic panniculepathy
PAG	: Periaqueductal gray
PET	: Positron emission tomography
PNS	: Peripheral nervous system
RA	: Rheumatoid arthritis
RF	: Rheumatoid factor
RhFSH	: Recombinant human follicle-stimulating hormone
ROM	: Range of motion
RVM	: Rostral ventromedial medulla
SCI	: Spinal cord injury
sCt	: Salmon calcitonin
SEP	: Somatosensory evoked potentials
SI	: Signal intensity
TBI	: Traumatic brain injury
TENS	: Transcutaneous electrical nerve stimulation
VAS	: Visual analog scale
WHO	: World Health Organization
YAG	: Yttrium aluminum garnet

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Introduction

The International Association for the Study of Pain (IASP) has described pain as “an unpleasant sensory and emotional experience”. Because pain is a subjective experience, clinicians and researchers rely on what the person reports about his/her own pain (*Merskey and Bogduk, 2004*).

The IASP in its classification of chronic pain defines *cervical spinal pain* as pain perceived anywhere in the posterior region of the cervical spine, from the superior nuchal line to the first thoracic spinous process (*Vaegter et al., 2013*).

Cervical pain is a common medical condition. Neck pain can come from a number of disorders and diseases and can involve any of the tissues in the neck. Examples of common conditions causing neck pain are degenerative disc disease, neck strain, neck injury such as in whiplash, a herniated disc, or a pinched nerve. Neck pain can come from common infections, such as virus infection of the throat, leading to lymph node (gland) swelling (*Jones and Ernst, 2012*).

Symptoms of neck pain including pain at the back of the neck which may spread to the upper back, shoulders, or arms, be worse with movement, make the neck stiff or tender and cause headache. Nerve-related symptoms caused by pressure on the spinal nerve roots or spinal cord include

numbness, tingling, or weakness in arm or hand, burning feeling when touch the skin of the arm or hand, leg numbness or weakness, and loss of the ability to control urination (bladder control) or bowel movements. These can be occur when there is pressure or injury to the spinal cord (*Graham et al., 2008*).

The cause of neck pain could be determined from patient's history and physical examination, but sometimes tests such as X-rays, MRI scans and CT scans are required to find the exact cause, assess the spine and show disc problems (*Tran et al., 2013*).

Italian Society of Mesotherapy (SIM) *define* Mesotherapy as a minimally invasive technique that consists of intradermal therapy (LIT) pharmaceuticals or other bioactive substances given in small quantities through dermal multi-punctures, where the injection site corresponds to the area of the pathological condition (*Maggiori, 2004*).

Mesotherapy consists of a series of “microinjections” of drug/active substance into the dermis using short needles where the needle is positioned at an appropriate angle depending on the thickness of the skin. Using a single needle, 4mm (27 gauge) or 13mm (30 or 32 gauge), positioned at 30–45 degree with respect to the skin surface was suggested. In general, 0.10–0.20mL of cocktail of drugs (NAIDS,

Lidocaine, muscle relaxant or other drugs) are injected at the injection points. If large areas are to be treated, the drug can be diluted (*Mammucari et al., 2011*).

If used correctly, mesotherapy is effective in the treatment of painful musculoskeletal conditions, chronic venous lymphatic insufficiency (CVLI), oedematous fibrosclerotic panniculopathy (OFP, more commonly known as *cellulite*), intradermal vaccination (*Mammucari et al., 2011*).

The proposed mechanism of action of mesotherapy is that solutions injected intracutaneously remain in the area longer than they would by deeper injection because they are slower to be cleared by general circulation. Further, it is felt that these solutions injected superficially but it continually penetrate into the deeper tissues (*Belhocine and Oussedik, 2000*).

The contraindications to mesotherapy include known hypersensitivity to any of the components, less than 18 years of age, pregnancy, lactation, patients on anticoagulants, cardiac drugs as hydralazine, calcium channel blocker and beta blocker, conditions like liver and kidney disorders, AIDS, seizure disorders, lupus and fibromyalgia (*Rohrich, 2005*).

Aim of the Study

To evaluate the effectiveness of mesotherapy as a technique of local administration of drugs for pain relief in cases of chronic cervical pain due to cervical spondylosis versus the effect of oral NSAIDs.