

## **Studies on Vital point stimulation therapy in severe low back pain**

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### **ABSTRACT**

Muskulo-skeletal disorders are one of the chief challenges encountered by practitioners in routine clinical practice due to altered life style, occupational habits, and food habits. In spite of the advances in medical science and technology a comprehensive solution for the same still remains elusive.

We have failed miserably in comprehending the concept of maárma which has been a closely guarded wisdom, making us alien to the core concepts of maármavijnan. This has prevented us from exploiting the possibilities of this potential discipline. It is high time that we undertook some serious introspection and endeavour in understanding the soul and spirit of the maárma therapy for making it beneficial for the pain management. My attempt here is to highlight some of the otherwise neglected Vital point (Marma) to reduce low back pain, by thermal stimulation. I would consider my effort fruitful if even the slightest of interest is raised regarding the same among the distinguished experts gathered here.

VPST work to stimulate the central nervous system, which in turn releases chemicals into the muscles, spinal cord and brain. These chemicals either alter the perception of pain or release other chemicals that influence the body's self-regulating systems. Biochemical changes support the body's natural healing abilities, improve circulation, and promote physical and emotional well-being. When circulation in the tissue improves, muscle relaxation occurs and pain is reduced.

**Key word:** Muskulo-skeletal, Marma, pain management

### **Background:**

The concept of pain in Ayurveda is very closely related with its concept

of health and disease. Life is a structure as well as function. So abnormalities of the structure and functions of life are

mutually contributory. Life is a flow and when there is obstruction in the path of flow there will be turbulence and the smooth flow of life is disturbed, and if the obstructions are in the vital area that will be critical and may fatal.

Inter Vertebral Disc Prolapse (IVDP) , the disabling Muskulo-skeletal disorders are one of the chief challenges encountered globally<sup>1</sup> by practitioners in routine clinical practice due to altered life style, occupational habits, and food habits. In spite of the advances in medical science and technology a comprehensive solution for the same still remains elusive. IVDP is not a life threatening, its enormous social and economic<sup>1</sup> cost is often underestimated. In 2010 the low back pain was reported to be comparable to that of cardiovascular disease, infectious disease and cancer<sup>3</sup>

Pathophysiology of low back pain due to IVDP is poorly understood due to difficulties in localising the source of the pain<sup>4</sup> Potential causes of low back pain include, but are not limited to, changes in the spinal disc structure with aging and degenerative changes and dehydration. The specific conditions contributing to IVDP include degeneration, inflammation, infective

and neoplastic causes, metabolic bone diseases, referred pain, psychogenic pain, trauma and congenital disorders<sup>5</sup> According to Ayurveda due to injury to vital points (Marma), Vata get vitiated naturally leading to blood vitiation that affects the Marma, which are nourished by seven hundred siras, thus leads to manifestations of symptoms<sup>6</sup>. According to Acharya Susruta vata, pitha, kapha and raktha (blood) this four siras are found to enter into the marmas for the purpose of maintaining the moisture of the local ligaments (snayu) , bone , muscle, and joints thus sustain the organism. The vayu aggravated by an injury to marma, blocks up those four siras their entire coarse throughout organism and give rise to great pain which extends all over the body<sup>7</sup>. In this regards the nerves passes through its pathway connecting to the vital points of 'Kurcha' , 'Kurchasiras', 'Indravasthi', 'Janu', 'Ani' and 'Kukunthara' marmas<sup>8</sup> become extremely painful and restricted the range of movements in joints.

In clinical practice, a focused medical history as well as physical examination<sup>9</sup> are required to make appropriate treatment recommendations. Diagnostic tests, such as X-ray,

magnetic resonance imaging (MRI), and computed tomography (CT) are not routinely recommended for acute IVDP cases, except when severe or progressive deficits are present or when serious potential factors are suspected. Conventional medications in several classes have been shown to have moderate short-term benefits for patients with low back pain. For most patients, first-line medication options include analgesics like acetaminophen or nonsteroidal anti-inflammatory drugs (NSAIDs)<sup>10</sup> These medications have limited effectiveness and are frequently associated with undesirable side-effects on gastrointestinal, reno-vascular, and other systems<sup>11</sup>. The heavy economic burden of IVDP induced low back pain has a huge impact on individuals, families, communities, governments, and businesses throughout the world. Thus, alternative back pain treatments are needed that minimize cost and maximize health benefit<sup>12</sup>. Although non-pharmacological treatments such as bed rest, exercise, acupuncture, massage, spinal manipulation, yoga, and cognitive behavioural therapy are commonly prescribed in addition to pharmacologic therapy, the evidence supporting their efficacy is inconclusive.

Massage therapy has been shown to be particularly effective for disorders of musculoskeletal origin<sup>13</sup>. Acharya Charaka explains that just as a post is made strong by smearing and soaking oil on it, just skin is made tense and strong by rubbing lubricating oil on it, just as an axis of a wheel is made strong and durable by applying lubricating around it. So also this human body become strong and possessed of a nice skin by the body if any, are alleged by massage, the body can endure more fatigue and physical excretion<sup>14</sup> However, due to a paucity of high-quality studies, there remains controversy about the efficacy and effectiveness of massage. Many clinical trials suffer from inadequate sample size, low methodological quality, and/or sub-therapeutic massage dosing<sup>15</sup> As a result, the findings of recent systematic reviews about massage therapy for low back pain are consistently inconclusive, due to the methodology flaws in the primary studies they reference. Therefore, studies without these flaws are important to confirm the efficacy and effectiveness of alternative therapy for low back pain<sup>16</sup> This trial will therefore contribute to providing a solid foundation for clinical treatment of low

back pain due to IVDP, as well as future research in massage therapy.

We have failed miserably in comprehending the concept of mā́ma which has been a closely guarded wisdom, making us alien to the core concepts of mā́ma-vijnan. This has prevented us from exploiting the possibilities of this potential discipline. It is high time that we undertook some serious introspection and endeavour in understanding the soul and spirit of the mā́ma therapy in IVDP related low back pain for making it beneficial for the pain management.

Ayurvedic Marma therapy is commonly defined as the ancient martial arts – Kalari - healing techniques. Study on Marma therapy by Lotiks Bharsti denotes that “ Marma therapy which is less time consuming and rapid acting can be used as an alternative and /or adjuvant therapy for treatment in cervical spondylosis<sup>17</sup> Different Marma therapies where been practiced in India for over more than 1000 years. My attempt here is to highlight some of the otherwise neglected Vital point (Marma) to reduce low back pain in IVDP, by thermal stimulation. RCY Henselmann, JC smith narrates that heat and cold modalities

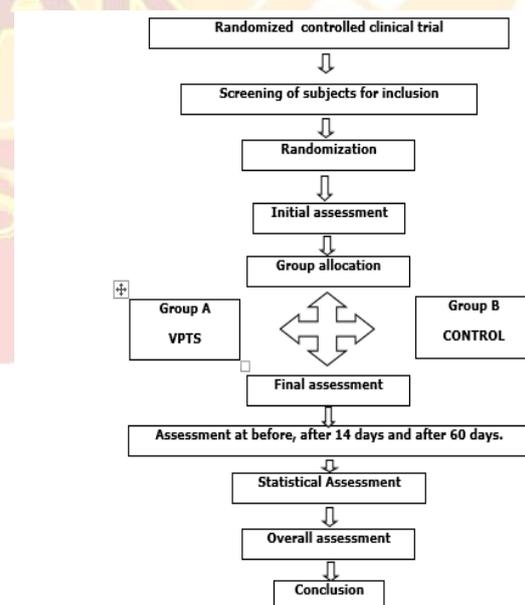
act as counter irritant and reduce muscle pain and guarding. This study shows the effect of heat and cold modalities effect range of motion when applied in conjunction with static stretching<sup>18</sup>. It is a well-respected treatment modality known to be helpful and safe for a wide range of conditions. For these reasons, it is rapidly achieving international goodwill. Marma therapy involves a wide range of technical tissue stimulations conducted by a practitioner’s finger, hand, elbow, knee, or foot applied to muscle or soft tissue at vital points with some altered pressure variations and also with thermal stimulation. Walsh<sup>19</sup>, the pain gate mechanism the impulses are modified or prevented from ascending along the cord to the brain then the pain intensity will reduced. The low voltage electrical currents are transmitted electrodes placed on the surface of the skin, the electric current stimulates non pain, low threshold afferent fibres, inhibits the sensory pain impulse and reduce the pain<sup>20</sup>. In osteoarthritis (Sandhi gata vata) the heat therapy were effective to reduce joint pain, tenderness, stiffness, locking of joint and local inflammation<sup>21</sup>. Often uses manual techniques such as

pushing, rubbing, kneading, or high-intensity, high-frequency patting to clear energy blocks along specific meridians associated with particular conditions. Marma stimulation in upper back (Amsa, Kakshadhra, Ani, Kurpara, Kshipra this are the upper limb vital points) by applying digital pressure, depending on the types of marma being stimulated for 20-25 minutes in one sitting a day got good result in cervical spondylosis<sup>17</sup>. Similarly in acupuncture techniques applied either by needle or heat or pressing or massage in certain specific points on the surface of the skin which stimulates the flow of energy within the body. Some of the acupuncture points are very similar to Ayurvedic vital points eg; Tzuliao – kukundara, Hsueh hai – Ani, Eting – janu, chiu hsu –kurchasiras, Chengshan – indravasti, Taipai – kurcha. The Moxa burning, Chinese alternative thermal therapy technique comparable to Dagdha chikitsa (Agnikarma) in Ayurveda. Thermal therapy indicated in paralysis, inflammatory joint conditions etc if acts like Moxa and cause inflammation of that area and increases free circulation therefore it hastens the healing process of the wound<sup>22,23</sup>. In this study, vital point stimulation by

massage and with heat (Agni karma) will inhibit the passage of sensory impulses to brain due to pain gate mechanism, and by massage, the low back area can endure more fatigue and physical exertion, enhance circulation, and promote physical and emotional well-being, improve muscle relaxation and range of movement's leads to normal health of the patient.

**Methods/Design**

**Study design:** The present study is a single, two-arm, open randomized controlled trial. All trial procedures was conducted in the Rajiv Gandhi Ayurveda Medical College, Chalakkara, Mahe. A total of 36 eligible IVDP patients will be randomly assigned to either a VPST group or a conventional control group in a 1:1 ratio



**Participants**

Eligible participants include patients diagnosed with IVDP according to the clinical guideline for Ayurvedic medicine. Patients presenting for the first time in the Salyatantra Department will be informed of this trial. If the patient expresses interest, provide a brief introduction about the trial. Detailed information regarding patients' IVDP was acquired for further assessment as per following inclusion criteria.

**Inclusion criteria**

In order to be included in this trial, participants have to be:

- (i) Diagnosed with IVDP
- (ii) Between 20 to 55-year old;
- (iii) Free of immune dysfunction, genetic disorders or severe cardiovascular diseases; diabetes
- (iv) Free from ankylosing spondylitis, spinal stenosis, intraspinal tumor, and tuberculosis;
- (v) Able to understand and accepted all trial procedures and cooperated with clinical physicians' practices

**Exclusion criteria**

Participants with any one of the following conditions was excluded from the trial:

- (i) Pregnancy;

- (ii) Severe heart, liver, or renal dysfunction;
- (iii) Tumor;
- (iv) Any hematological, respiratory, or cardiovascular disease;
- (v) Any psychiatric disorder;
- (vi) Severe nervous dysfunction resulting from vertebral pulp prolapse,
- (vii) Cauda equine compression;
- (viii) Rheumatic arthritis.

Benefits and risks are clearly explained to eligible patients before inclusion. Prior to trial inclusion, all eligible patients provided their written consent with sign.

**Randomization**

In this trial, participants will be randomly assigned to either the VPST Group or in the Control group in a 1:1 ratio using a random number generator. As an open-label clinical trial, both patients and clinicians know which treatment approach they will receive, and they are required to cooperate with their physicians or therapists prior to treatment.

**Trail treatment group**

The IVDP Patient received vital point stimulation therapy for 30 minutes in both legs and sacroiliac joints as per the protocol mentioned below, assessed before the treatment, after 14 days and

after completion of the treatment. Gandarva hasthadi kwatha<sup>24</sup> 60 ml twice daily, Trayodasanga gulgulu 1 tab twice daily, Gandarva castor oil 10 drops twice daily given internally in both group

VPST protocol:

First step: Patients are instructed by the therapist to lie in the prone position and to relax their mind and body. IVDP conditions can be carefully examined by inspection and palpation in assessment prior to treatment. Tender Vital points were identified by therapist will use his forearm to gently roll on the low back area from the bilateral erector spinae muscles to both thighs, and then continuously from the low back to the gastrocnemius muscle through to the buttocks, thigh, calf muscle to the end of toes for a figure of eight rotation pressure massage for 41 times. During this time, the force and pressure are gradually increased with the intention of smoothing and stimulate the nerve ends. Vital point stimulation works to stimulate the central nervous system, which in turn releases chemicals into the muscles, spinal cord and brain. These chemicals either alter the perception of pain or release other chemicals that influence the body's self-

regulating systems. Biochemical changes support the body's natural healing abilities, improve circulation, and promote physical and emotional well-being. When circulation in the tissue improves, muscle relaxation occurs and pain is reduced. It take minimum 15 minutes

Second step: local pressing on painful vital points of Kurcha , Kurchasiras, Indravasthi, Janu, Ani and Kukunthara. It is generally recognized as reflecting the symptoms in IVDP condition and is frequently manipulated to stop pain. In this step, the therapist will apply muscle pressing, stripping, and deep tissue kneading to the pressing vital point in the lumbar region in a direction perpendicular to the erector spinae. The pressure and amplitude shall be gradually intensified and enlarged throughout the five-minute manipulation, which is intended to release the pain.

Third Step: The patient lie on prone position, marked vital points of 'Kurcha' (in between first and second toe), 'Kurchasiras'(just above the calcanium and calcaneus tendon), 'Indravasthi'( just below the calf muscle), 'Janu'(Knee joint), 'Ani' (lower third of the thigh) and 'Kukuntara'(sacroiliac joint) in both

side, then cleaned the area with antiseptic solution. Then the heated panchaloha salaka applied for one second in the above vital points then rub the area with Kumari (aloe vera) pulp to avoid excessive burn in the area.

### **Control group**

Gandarva hasthadi kwatha, Trayodasanga gulgulu, Gandarva castor oil given internally for thirty days along with below protocol

Patients are instructed by the therapist to lie in the prone position and to relax their mind and body. IVDP conditions can be carefully examined by inspection and palpation, proper assessment prior to treatment. Tender Vital points were identified by therapist used his forearm to gently roll on the low back area from the bilateral erector spinae muscles to both thighs, and then continuously from the low back to the gastrocnemius muscle through the buttocks, thigh, calf muscle to the end of toes for a figure of eight rotation pressure massage for 41 times. During this time, the force and pressure are gradually increased with the intention of smoothing and stimulate the nerve ends to reduce the pain. It take minimum 15 minutes.

### **Outcome measurements**

The efficacy of VPST for the treatment of IVDP was assessed by the primary outcome measure: the baseline data and the data from three assessment of two group were coded into the computer, Frequencies and mean value of the base line variables were calculated for purpose of ensuring compatibility between the study and control group. Paired't' and student't' test was used to compare the out measure in the study and control group.

### **Discussion**

The present trial is a comparative effectiveness study of Marma (Vital point) stimulation techniques in patients with IVDP. The study design adopted is randomised controlled clinical trial. 18 research participants in study group selected in accordance to relevant exclusion and inclusion criteria were put on selected vital point stimulation therapy. The controlled group consisting of similarly selected research participants (18) were subjected to existing Ayurvedic regimen. Vital point stimulation works to stimulate the central nervous system, which in turn releases chemicals into the muscles, spinal cord and brain. These chemicals either alter

the perception of pain or release other chemicals that influence the body's self-regulating systems. Biochemical changes support the body's natural healing abilities, improve circulation, and promote physical and emotional well-being. When circulation in the tissue improves, muscle relaxation occurs and pain is reduced.

The VPST used in this trial combine relaxation and pressure due to heat, the heat stroke proteins activate thermoreceptors TRPV1 to block P2X3 pain receptors and alarms immune system and alter the pain signal transmission to inhibit the nociceptors to transfer the signals to brain.

Marmas are points in the body where concentrated life force energy (Prana) is located. Prana is simply the vibrational electromagnetic energy of nature. Prana is what sustains us. There is nothing mystical-shmystical about this energy. So, prana is that life force in Ayurveda, as the Chinese refer to it chi. Marma is a point of concentrated prana where anatomical structures (muscle, bone, tendon, vessels, ligament, and joints) are also present. Through gently working on marma points, prana is treated, as opposed to

simply working on physical tissues. The primary purpose is to promote the flow of Prana in the body-mind. Marma points are switches that when opened up, allow for the increased flow of energy. Marma therapy balances the flow of energy through the muscles, joints and organs of the body. Marma therapy balances the doshas (physical humors), increase digestive fire, detoxification, indigestion, promote energy and rejuvenation.

Pain is produced by stimuli exceeding the intensity threshold for sensory nerve endings. The nervous impulses are produced by the stimulation of peripheral receptors, which is inferred as pain within the higher cerebral centres. Such type of nervous activities may be produced by a number of physical phenomena, i.e. pressure, squeezing, tension, tearing, puncturing and by the change of temperature, cold and hot, or by the chemical effects such as the change of pH, i.e. concentration of histamine-like substances, bradykinin, serotonin and other polypeptide compounds.

Pain is usually caused by obstruction of Vata (Physical humor) and altered blood circulation in the affected body region. Pathogenic factors such as

blood stasis, stagnation, phlegm, dampness, and others can be identified as causative factors in the blockage. In such conditions to release energetic block the vital point stimulation therapy quickly act and leads to increased circulation and reduction of localized swelling, which helps to reduce associated pain.

The statistical analysis of the data for the test of significant was conducted with paired 't' test for most of the observation. The result shows that the before and after studies conducted were highly significant statistically in both groups. Improvements in the range of motion in both group were tested with student 't' test. The final analysis shows that, trail group with Vital point stimulation techniques highly significant than in the controlled group

**RESULTS**

Vital point stimulation techniques is effective in the management of IVDP.

**CONCLUSION**

Vital point stimulation therapy in IVDP was conducted as a small sample and a similar study performed over a large sample could present clear view of the significance.

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