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Original Research Article

Effectiveness of Mind Sound Resonance Technique versus Progressive Muscle Relaxation in Common Neck Pain Individuals: A Comparative Study

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ABSTRACT

Background: The main cause of neck pain is tension. During periods of intense anxiety, the muscles tense up dramatically. Muscle tension tightens the muscles, especially in shoulders, back and neck. The more anxiety the individual experience, the more tension may cause significant pain and discomfort. The Conventional conservative methods include non- steroidal Anti-inflammatory drugs, physical measures such as heat, Ultra sound, Manipulations and exercises. Yoga is used to alleviate various types of pain. This is safe and cost-effective intervention which comprises of physical postures, breathing exercises, meditation and relaxation. Although, MSRT has been routinely as component of the integrated approach to Yoga therapy for treatment of neck pain and back pain gave encouraging results. MSRT intervention also led to better reduction in pain, tenderness, disability and state anxiety in patients suffering from chronic neck pain.

Method: Individuals having neck pain on VAS 3-7, individuals aged between 18-24 years and willing to participate who understood English language, both males and females were included in the study. 15 participants were given MSRT and 15 participants were given PMR. Both groups were given conventional treatment. Outcome measures used were VAS and NDI.

Result: Paired t test was used to compare within groups where $p<0.05$ and unpaired t test was used to compare between groups where $p>0.05$.

Conclusion: The study concluded that both MSRT and PRT were equally effective in reducing pain and improving NDI score.

Keywords: Mind Sound Resonance Technique, Common neck pain

INTRODUCTION

Neck pain is the sensation of discomfort in the neck area. Neck pain is a major public health problem in modern societies. The world health organization has ranked neck pain at 4th disorder health condition for years lived with disability for 15-19 year olds higher than well known adolescent public health problems such as asthma, alcohol use, drug use, and road injury. Neck pain can originate from any structure in neck including intervertebral disc, ligaments, muscles, facet joints, dura and nerve roots. Potential causes can be tumors, infection, inflammatory disease and cognitional disorders. (1) Childhood and Adolescence is the core risk phase for development of symptoms and syndromes of anxiety that may range from transient mild symptoms to full blown anxiety disorders. (2)

Stress has physical effect on the body. The main cause of neck pain is tension. During periods of intense anxiety, the muscles tense up dramatically. Muscle tension tightens the muscles, especially in

shoulders, back and neck. The more anxiety the individual experience, the more tension may cause significant pain and discomfort. Hogg Johnston and colleagues conducted a best evidence synthesis of the burden and prevalence of neck pain and reported studies showing that poor psychological health both predicts and coexists with the experience of neck pain. [(3)] "Common neck pain" (CNP) which is not due to any organic lesion accounts for more than 80% of neck pains. The Conventional conservative methods include non- steroidal Anti-inflammatory drugs, physical measures such as heat, Ultra sound, Manipulations and exercises. [(4)] Yoga is used to alleviate various types of pain. This is safe and cost-effective intervention which comprises of physical postures, breathing exercises, meditation and relaxation. The practice of Yoga has been suggested to relief pain by down- regulating the hypothalamic pituitary adrenal axis and sympathetic nervous system. [(5)]

Relaxation can help relieve the symptoms of stress. Progressive relaxation technique involves contracting and relaxing the muscle to make you feel calmer. This techniques has proven beneficial in relieving neck pain, headache and back pain by relieving stress and reducing tension on muscles. It also relieves pain and anxiety. [(6)]

Yoga has been found to be effective in reducing stress levels. Mind Sound Resonance Technique (MSRT) is one of the advanced guided yoga relaxation techniques that can be practiced in supine or sitting posture for achieving the goal of positive health, will power, concentration and deep relaxation. It was developed using the concepts of traditional texts that talk about the power of Om *(Mandukya Upanishad)* and *Nadanusandhana (Hatha Yoga Pradipika)* for achieving internal mastery over modifications of the mind. MSRT opens up the secret of traditional chants called *Mantra*. [(7)]

With growing dissatisfaction with conventional therapies, there is a pressing need for complimentary measures and yoga seems to hold promise through its multifaceted approaches to healing. Although, MSRT has been routinely as component of the integrated approach to Yoga therapy for treatment of neck pain and back pain gave encouraging results. MSRT intervention also led to better reduction in pain, tenderness, disability and state anxiety in patients suffering from chronic neck pain. [(6)] There is lack of evidence using this technique.

Hence, this study was planned with an aim to evaluate the efficacy of this adjunctive which is yoga based relaxation technique along with conventional physiotherapy treatment and compare it with the conventional physiotherapy technique along with Progressive Muscle Relaxation (PMR). The objectives of the study were to find the effect of Conventional treatment and Progressive Muscle Relaxation (PMR) in common neck pain individuals in terms of Neck Disability Index and Visual Analogue Scale (VAS), to find the effect of Mind Sound Resonant Technique (MSRT) with Conventional Treatment in common neck pain individuals in terms of Neck Disability Index and Visual Analogue Scale (VAS) and to compare the effectiveness of Conventional treatment along with Mind Sound Resonance Technique (MSRT) versus Conventional treatment along with Progressive Muscle Relaxation (PMR) in common neck pain individuals in terms of Neck disability index (NDI) and Visual Analogue Scale (VAS).

MATERIALS AND METHODS

The study was a comparative study. Sample size was 30. Individuals having neck pain on VAS 3-7, individuals aged between 18-24 years and willing to participate who understood English language, both males and females were included in the study. Individuals diagnosed with any mental disorder like Schizophrenia, Panic disorder etc. Individuals having impaired cognition (MMSE <24), individuals who were having difficulty in following commands, and any

inflammatory conditions of neck like PIVD, Radiculopathy, degenerative conditions like Cervical Spondylosis were excluded. Intervention duration was for 2 weeks, 5 days a week, 60 min per session. Interferential therapy equipment, Audio tape of Mind sound resonance technique (MSRT), Yoga mat, Mini Mental State Examination (MMSE) scale, Neck Disability Index, Visual Analogue Scale (VAS) and Consent form were used in this study.

The title was approved by college ethical committee. Signed consent form was taken from participants. Pre readings on Neck Disability Index (NDI) and Visual Analogue scale (VAS) were noted. The participants were randomly allocated in two Groups namely A and B using chit method. Group A was given MSRT technique with Conventional Physiotherapy Treatment and Group B was given Progressive Muscle Relaxation with Conventional Physiotherapy Treatment in the form of Interferential therapy (IFT) for 15min, neck isometrics, chin tuck exercises and Trapezius muscle stretching for 15min for 2 weeks, 5 days a week. After 2 weeks of session, post readings on Neck Disability Index and Visual Analogue Scale (VAS) were noted.

Procedure:

For PMR treatment:

1. Start in a quiet room
2. Empty bladder
3. Take off shoes, watches, glasses
4. Supine position on yoga mat
5. Make breaks between different muscle groups
6. Feel the tension and relaxation

Instructions:

1. Gently breathe in – hold – and let go.
2. Gently pull your toes up towards your knees – just a little – hold briefly – and let go. Recognize the difference.
3. Press your heels into the floor – hold – and let go.

   Pull your knees together – hold briefly – now let them drift apart a little. Be aware of the new position.
4. Squeeze your buttocks together – hold – now let go.
5. Gently pull in your tummy muscles towards your spine – hold briefly – now let go. Feel the difference.
6. Shoulders – gently pull them up towards your ears, just enough to recognize the tension – hold briefly – now let go. Recognize the new position.
7. Gently press your elbows and upper arms to the sides of your body – hold for a moment – now let go.
8. Hands – gently clench – hold – and let go.
9. Push your head forward slightly – hold briefly – now let your head go back to a balanced position. Feel the difference.
10. Grit your teeth together – hold briefly – now let your jaw sag slightly. Feel the difference.
11. Lips – press together – now let go until hardly touching. Purse your lips – now let go and feel the difference.
12. Press your tongue briefly to the roof of your mouth – hold – and let it drop loosely. Feel the new position.
13. Eyes – screw them up a little – hold – and let go.
14. Forehead – frown a little – hold – now let go.

For administering MSRT technique:

The room selected was quiet, well ventilated and lighted.

A yoga mat was used as this technique was administered in lying position.

Participants were instructed to wear loose and comfortable clothing and to empty the bladder before the procedure.

A pre recorded audio tape was played on speaker in clear audible voice but low volume.

The audio consists of:

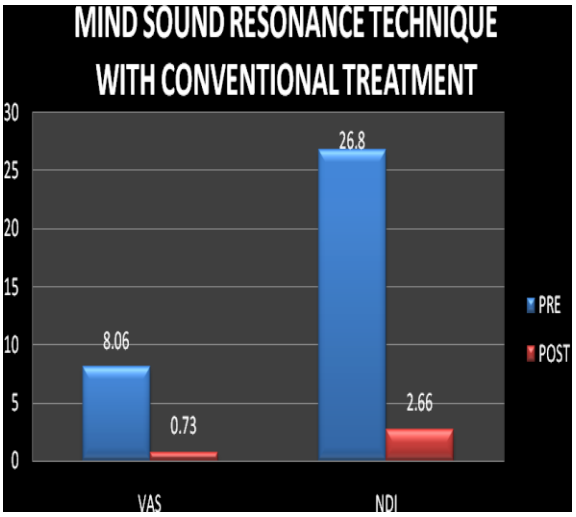
1. Start with prayer: *Mahamrityunjaya mantra*. Take few deep breaths. Relax the whole body. Relax all the muscles.
2. Chant *akara, ukara, makara* loudly. 3 times
3. Take a deep breath in and chant -*aaaa*, take a deep breath in and chant –*uuuu*, take a deep breath in and chant- *mmmm*.

4. Now combine all 3 together and chant *'aum'* in a single breath. Now feel the resonance from toes to head.
5. Next step is chanting *Aahata and Anahata* of *akara, ukara and makara*.
6. *Aahata* is loud chanting while *Anahata* is chanting the same sound in mind.
7. Repeat 3 times. Take a deep breath and chant loudly (Aahata) akara, ukara and then makara. Now again take a deep breath and chant the same sound in mind (Anahata).
8. Now chant all 3 together *'aum'*. First aahata and then anahata.
9. Let the resonance spread all over the body. Feel the blissful awareness in silence.
10. In the state of silence, say a clear and affirmative sentence repeat for 9 times in mind with total faith and emotions. Do not disclose the sentence formed.
11. Now, listen to *Mahamrityunjaya mantra* for 3 times. Let it create the same resonance as before.
12. Now at last pray for well being of everyone by chanting or listening to *shanti -paath*.

RESULTS

Table 1: Group A (MSRT)
Within group Analysis:

GROUP A	PRE	POST	t	p	Inference
VAS	8.06± 0.96	0.73± 0.59	34.7	<0.01	Significant
NDI	26.8± 5.11	2.66± 2.09	16.3	<0.01	Significant



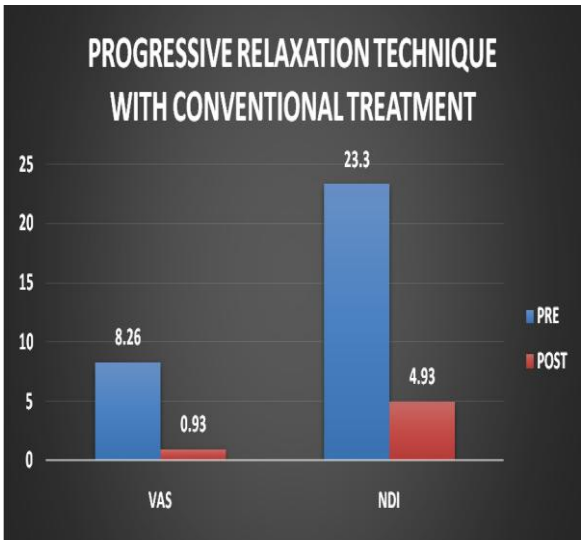
Graph 1

Interpretation:

Table 1 and Graph 1 show within group analysis of Group A on Visual Analogue Scale and Neck Disability Index. Paired t test was applied and the result shows statistically significant change pre and post intervention as p<0.05. This shows that MSRT with conventional treatment was effective in reducing pain and improving NDI score.

Table 2:
Group B (Progressive Relaxation Technique)
Within group analysis:

GROUP B	PRE	POST	t	p	Inference
VAS	8.26± 1.22	0.93± 0.59	31.56	<0.01	Significant
NDI	23.3± 6.12	4.93± 3.61	10.46	<0.01	Significant



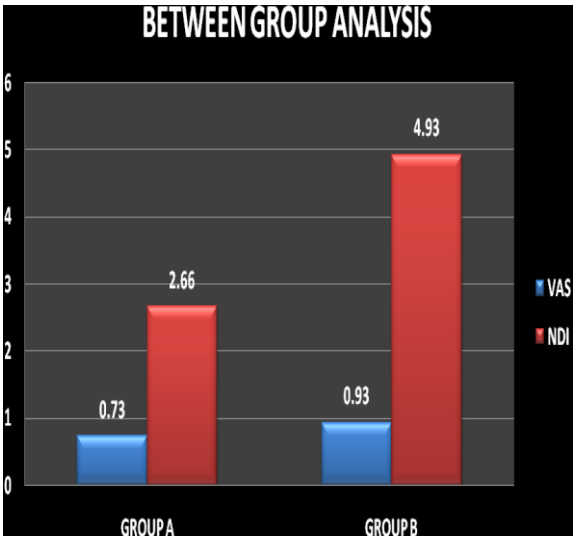
Graph 2:

Interpretation:

Table 2 and Graph 2 show within group analysis of Group B on Visual Analogue Scale and Neck Disability Index. Paired t test was applied and the result shows statistically significant change pre and post intervention as p<0.05. This shows that PRT with conventional treatment was effective in reducing pain and improving NDI score.

Table 3: Between Group Analysis:

	GROUP A	GROUP B	t	p	Inference
VAS	0.73± 0.59	0.93± 0.59	0.922	0.36	Not significant
NDI	2.66± 2.09	4.93± 3.61	2.1	0.08	Not Significant



Graph 3:

Interpretation:

Table 3 and Graph 3 show between group analysis on Visual Analogue Scale and Neck Disability Index. Unpaired t test was applied and the result shows statistically no significant change post intervention between two groups as $p>0.05$. This shows that both interventions were equally effective in reducing pain and improving NDI score.

DISCUSSION

The objective of the study was to observe the effect of Mind sound resonance technique versus progressive relaxation technique on neck pain and neck disability index.

This study shows that both interventions within the groups were effective in reducing pain and improving neck disability score pre and post intervention (Table and Graph 1 & 2). Also both groups were equally effective in reducing pain and improving neck disability score when compared between groups (Table 3 and Graph 3).

Tension that is associated with stress is stored mainly in neck muscles, diaphragm and nervous system. If these areas are relaxed, stress gets reduced minimizing the impact of stress on individual. [(8)] Stress can cause spasms by interfering with coordination of different muscle groups involved in functioning of neck.

When pain occurs, it causes constant state of attention which leads to sympathetic activation called fight/flight response which releases stress hormone such as adrenaline and cortisol, BP and Heart rate goes up, respiration becomes shallow and rate increases, capillaries contract.

Relaxation of muscles lead to relaxation of mind, because emotional state fails to exist in presence of complete relaxation of peripheral parts involved so neurophysiologic explanation of relaxation of Jacobson's is popular. [(6)]

Relaxation techniques reduce pain and improve flexibility by reducing muscle tension. Relaxation reduces sympathetic activity reducing anxiety and BP. [(7)]

Relaxation of muscles releases neurotransmitters such as Dopamine, Serotonin, nor adrenaline, acetylcholine, GABA and endorphins. These are often called as 'Feel Good' hormones that increase parasympathetic activities reducing pain perception thereby reducing pain. [(6)]

Also in this study, as the sample size was small and intervention of only 2 weeks was carried out, which might be the reason that there was no significant difference in between the groups.

CONCLUSION

The study concludes that both MSRT and PRT were equally effective in reducing pain and improving NDI score.

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