

Addition of New Exercises and Techniques in the Management of Cervical Pain Syndrome

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This prospective study was conducted at Physiotherapy department of Lahore General Hospital Lahore and that of Sir Ganga Ram Hospital Lahore, Pakistan on 123 patients from June 1998 to March 2001. Up till now, there are no relaxation exercises defined and not used for the management of cervical pain/syndrome. But this study attempts to describes and emphasize the value and need of application of relaxation exercises in the management of neck pain .Study revealed that these are very effective in terms of early recovery , in reducing number of sick days , in increasing the quality of life and to get long term effects. Therefore, relaxation exercises should be included and applied in the management of neck pain/syndrome.

Key words: Physical therapy –neck pain, Exercise therapy-cervical syndrome, Relaxation Exercises-cervical -pain

Neck pain is quite a common complaint in almost every nation. Neck pain can arise from degenerative processes, musculoskeletal trauma, or structural changes¹. Other factors include muscular sprain, poor posture, cervical spondylosis and jerky movements etc: It can be labeled as an "occupational illness" as it is most common in occupations that involve neck bending for a long period of time like among clerical staff, teachers, students, dentists ,tailors etc . Cervical syndrome is represented by a group of symptoms and signs mainly localized in the neck region, but also can be present in other regions such as head, humero-scapular, precordium, scapular and interscapular, upper limbs and sometimes lower limbs². Physiotherapy significantly reduces neck pain³. Routine treatment of neck pain involves analgesics, thermo therapy, ultrasound, low frequency pulsating electromagnetic field ,laser photo-bio-stimulation ², cervical traction, transcutaneous electrical nerve stimulator ⁴, low frequency currents ,correction of ergonomics, strengthening exercises^{5,6} and cervical collar. But relaxation exercises are not yet used in the management. Since type of intervention is directly related to outcome ⁷. Study of Moe K; Thom E favors the application of relaxation exercises⁸. Therefore, in this study, a specific and new set of relaxation exercises was designed and employed in the management of cervical pain /syndrome and its effects were observed. Results obtained were very appreciating that strongly recommend its application. So this paper deals with the introduction and inclusion of relaxation exercises in the management of neck pain/syndrome.

Material and methods

This prospective clinical trial was conducted from June 1998 to March 2001 at Physiotherapy department of Lahore General Hospital Lahore and Sir Ganga Ram

Hospital Lahore. Clinical trials were conducted on 123 patients divided into two groups. In experimental group(A), 70 patients were included and 53 in control group(B).

Inclusion criteria: Patients > 17 years of age , cervical pain: without neurological deficit, due to poor posture ,degenerative changes ,cervical spondylosis, cervical disc herniation , trauma ,muscular pain.

Exclusion criteria: Patients <17years of age, cervical pain caused by: hypertension, tumor , torticollis, fracture of cervical vertebrae ,head and cervical spinal injury with neurological deficit and cervical pain of cardiac origin.

Procedure & technique

A suitable and available electrotherapeutic modality was employed along with the correction of posture in both groups .In group-A, a specific set of new self designed relaxation exercises were employed on the very first day of treatment along with passive movements of the cervical spine . Afterwards, these exercises were augmented by traditional isometric neck exercises⁵ throughout the treatment session. But in group-B, only isometric neck exercises were employed. In both groups, improvement was recorded by how much patients in how much days regain normal pain free neck movements , improvement in quality of life and increase in pain threshold ? Results obtained were statistically analyzed by Z-test⁹ and tested for significance by P-value(for number of patients in both groups) ,compared by percentage and days of therapy by ratio. P value of <0.005 was taken as statically significant for comparison.

Sex & age incidence

Females were 75(60.97%) and males 48(39.02%) with age ranging from 17 to 45 years.

Table 1. Comparative study

Days of therapy			Ratio of days of therapy in groups-A&B	P value for patients in groups-A &B	%age of patients in both groups (n=123)	
Group-A (n=70)	Group-B (n=53)	Difference			Group=A	Group-B
a)-15(n=65)	25(n=33)	10	3:5	<0.001**	52.84	26.82
b)-18(n=05)	30(n=20)	12	3:5	<0.001**	4.06	16.26

*p-value of <0.005 was taken statistically significant.

**P-value for number of patients in both group was <0.001 i.e. highly significant.

Patient's satisfaction

About the relaxation exercises were recorded in both groups on the basis of its effects and comfort gained.

Table 2. Satisfactory rate of patients

Degree of satisfaction	Group-A (n=70)	Group-B (n=53)
Very good	Very comfortable (n=23, 43.39%) Induces sleep (n=17,32.07%) Induces general relaxation (n=13,24.52%)	-
Good	-	38(71.69%)
Satisfactory	-	15(28.30%)

Exercise technique

Position

Patient sit comfortably on a back supported arm chair with head in a normal alignment. Therapist stand behind the patient.

1. Place one hand in front of the patient's forehead and other behind the neck. Now gradually, smoothly extend the neck of the patient up-to the full range ,hold the position for ten seconds at the extreme of the range then relax.(1a,1b).



1 (b) Final position

2. Slightly tilt the head to the right side. Therapist place one hand behind the neck just below the left ear and other on the forehead from the right side. Repeat the procedure as outlined above in para-1(Photo 2)



(2)

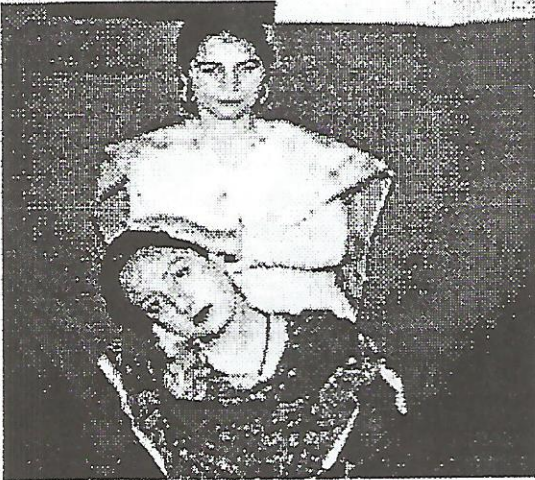
3. Now change position of the head slightly obliquely towards the left side. Place one hand behind the neck just below the right ear and other in front of the



1 (a) initial position

forehead towards the left side. Repeat the procedure as in para-1.

4. Bring the head in the neutral position. Therapist place her right forearm on the right shoulder of the patient with the palm facing towards patient's face and palm of the other hand placed on the left side of the head. Now gradually and smoothly move the head of the patient towards the right side with the assistance of the other hand up-to the full range. Hold the position for 10-seconds and then relax (photo 3).



(3)

5. Repeat the similar technique with the left side as described in para-4.
6. Head in the normal alignment. With both hands grasp in front of the lower jaw, placing index and middle finger below the lips and place thumb behind the ear on the mastoid process (photo4,5). Now lift the head up comfortably, hold for five seconds and then relax.



(4)

7. Now slightly tilt the head towards the right side and repeat the procedure as in para-6.
8. Then slightly move the head towards left side and repeat the procedure as in para-6.



(5)

9. Patient place his clasped hand behind the neck and then comfortably extend his neck up to the full limit and then relax (photo 6).



(6)

10. Head in the normal position .Place one hand behind the neck and other at the front of the forehead Therapist passively move the neck gradually, smoothly and comfortably in a backward and forward direction.
11. Head in the normal position. Place palms of the hands on either side of the head. Now passively move the neck smoothly to the right side and then to the left side.

12. Head in the normal position. Place palms of the hands on either side of the lower jaw and passively rotate the neck to right and left side.
13. Head in the neutral position Grasp shoulders on both sides. Now comfortably, smoothly and gradually move the shoulders towards the ear up to the full range and beyond, hold for ten seconds and then relax.

Results

Study showed that cervical syndrome is more common among women (n=75, 60.97%). Group-B took 10&12 days more for recovery as compared to that of group-A and a ratio of 3:5 stands between these indicating a marvelous difference in days of therapy. So number of sick days reduced in group-A (Table 1).

Out of 123 patients, majority of patients (52.84%, 4.06%) recovered earlier in whom relaxation exercises were employed i.e., in group-A than in group-B (26.82%, 16.26%). Statistically, this difference is also highly significant as shown by P value of <0.001 (Table 1). Satisfactory rate of patients was also very good in group-A (n=70, 100%) while in group B, good (n=38, 71.69%) and satisfactory (n=15, 28.30%) as shown in Table 2.

Discussion

Neck pain is a very common complaint all over the world. Neck and shoulder complaints are common among working age adults and they are often associated with physical work load and stress¹⁰. Female predominance is found in this study as compared to males, because major part of the study was completed at Sir Ganga Ram Hospital Lahore that is specially meant for ladies. Therefore turn over of female patients in this study is generally more than males. Due to pain, muscles goes into the protective spasm, range of neck movement decreases with consequent occurrence of functional disability. Neck flexor gets stronger while neck extensors becomes weak. Trapezius muscle is a key muscle that supports the neck in extension and able the patient to perform different functions. But due to pain and protective spasm, muscular strength decreases. Pain in the neck and shoulder area cause bio-psychosocial difficulties for the patient especially if disability due to pain is prolonged¹⁰ with consequent decrease in quality of life, functional disability and reduction in power of concentration. So demanding quick and effective management and prevention of further episodes of ailment. Electrotherapeutic modality applied serves to eliminate circulatory and neurological disturbances that cause the appearance of signs in cervical syndrome² Exercises constitute the key ingredients in the management of neck pain that serves two functions. Relaxation exercises serves to reduce muscle spasm, pain, induces muscular relaxation. Isometric exercises⁴ built up muscle strength which in turn is utilized to support the neck. In a study, for employees with neck, back and shoulder pain, the combination of relaxation exercises

and physical training with professional instruction and follow-up employed significantly reduced absenteeism from 11.2 days per year (pre-study) to 0.2 days per year (at the end of the 12-month training period) (p < 0.001)¹⁰ supporting the use of relaxation exercises. Two trials using electromagnetic therapy produced a significant reduction in pain (p < 0.01) with three to four weeks of daily (eight hours per day) therapy sessions¹¹. In this study, it took a longer duration of therapy (25&30 days) in group-B as compared to that in group-A i.e., 15&18 days indicating significant reduction in number of sick days (10,12) indicating significant reduction in cost spend on and improvement in quality of life in group-A. Greater number of patients gets pain relief earlier in group A (52.84% 4.06%) than in group-B (26.82%, 16.26%). However, pain was aggravated in 05(7.1%) patients in group-A due to incorrect performance of relaxation exercises and they took additional three more days for recovery i.e.18 days. Study of Friedrich M indicated that there was a strong correlation between the quality of exercise performance and decrease in pain¹².

Thus exercises should be performed carefully and only by experts.

Patients were very satisfied in group A and reported that relaxation exercises as very comfortable (43.39%, n=23), induces sleep (32.07%, n=17) and induces general relaxation (24.52%, n=13) on the basis of its effects comfort gained. Two patients in group A, insisted to come more just for the purpose of getting enjoy of relaxation exercises. While in group B, satisfactory rate of patients remained good (n=38, 71.69%) and satisfactory (n=15, 28.30%). Again here group A has more merit than group B.

Conclusion

Relaxation exercises has a vital and key role in the management of cervical pain/syndrome. Early recovery, patient's satisfaction, cost effectiveness and improved quality of life support aggressive use of relaxation exercises. These are very strong merits and recommendations for the utility of relaxation exercises and techniques for the effective and long term management of cervical pain/syndrome.

References

1. Kriss TC; Kriss VM, University of Kentucky, USA; "Neck pain primary care work-up of acute and chronic symptoms"; *Geriatrics* 2000 Jan;55(1):47-8, 51-4, 57 (ISSN: 0016-867X), Language :English.
2. Boskovic K, "Physical therapy of subjective symptoms of the cervical syndrome"; *Med Pregl* 1999 Nov-Dec;52(11-12):495-500 (ISSN: 0025-8105).
3. Karlberg M; Magnusson M; Malmstrom EM; Melander A; Moritz U "Postural and symptomatic improvement after physiotherapy in patients with dizziness of suspected cervical origin"; Department of Oto-Rhino-Laryngology, University Hospital, Lund, Sweden, *Arch Phys Med Rehabil*

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- 1996 Sep;77(9):874-82 (ISSN: 0003-9993) ,Language: English.
4. Stone RG; Wharton RB; "Simultaneous multiple-modality therapy for tension headaches and neck pain"; JFK Medical Center, Wellington Regional Medical Center, Pinecrest Rehabilitation Hospital, Atlantis, Florida, USA; Biomed Instrum Technol 1997 May-Jun;31(3):259-62 (ISSN: 0899-8205) ,Language: English.
 5. J.O. WALE, "After-effects of injury-stiff joints in Tidy's massage and remedial exercises in medical and surgical conditions";P:129, Edition-11, Published under the Wright Imprint by IOP Publishing Ltd., Techno House, Redcliffe Way, Bristol BS1 6NX, England, 1987.
 6. LARS Peterson, Per Renstrom, "Effects of Physical training on internal organs in Sports Injuries ,their prevention and treatment";P:433, Published by Martin Dunitz Ltd, 54 Camden High street, London, 1986, paperback edition 1988.
 7. Jette DU; Jette AM, "Physical Therapy and health outcomes in patients with spinal impairments", Phys Ther, 76:930-41, 1996 Sep.
 8. Moe K; Thom E; "Musculoskeletal problems and physical activity. Results from a long-term study"; Tidsskr Nor Laegeforen 1997 Nov 30;117(29):4258-61 (ISSN: 0029-2001).
 9. Betty R Kirkwood; "Essentials of medical statistics ,chapter-12:Proportions",P:84-85, Blackwell scientific publications, 1988.
 10. Karjalainen K; Malmivaara A; Roine R; Jauhiainen M; Hurri H; Koes , FINLAND; "Multidisciplinary biopsychosocial rehabilitation for neck and shoulder pain among working adults (cochrane review)"; Cochrane Database Syst Rev 2000;(3):CD002194 (ISSN: 1469-493X) Language: English
 11. Gross AR; Aker PD; Goldsmith CH; Peloso P, "Physical medicine modalities for mechanical neck disorders";Cochrane Database Syst Rev 2000;(2):CD000961 (ISSN: 1469-493X) ,Language: English.
 12. Friedrich M; Cermak T; Maderbacher P; "The effect of brochure use versus therapist teaching on patients performing therapeutic exercise and on changes in impairment status"; Department of Orthopedic Physiotherapy, Orthopedic Hospital Speising, Vienna, Austria Phys Ther 1996 oct;76(10):1082-8 , (ISSN: 0031-9023) ,Language: English.