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# RESEARCH ARTICLE

## CHRONIC CERVICAL RADICULOPATHY – EXERCISES AN EVIDENCE BASED REPORT

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## ABSTRACT

Geriatric subjects with arm and neck pain can influence their daily functional means. Non operative means with exercises were cost effective and yields better results Aims and Objective of this research was to analyze the effects of specific exercises in chronic cervical radiculopathy using neck disability index

**Materials and Methodology:** 76 year old male with chronic cervical radiculopathy (Left) was treated with conservative means of specific exercises at Chennai during the period from 21.06.2017 to 10.08.2017 was treated for 6 weeks with a frequency of thrice a week. **Results:** Pre and Post neck disability index has shown a P value of <.05

**Conclusion:** Specific exercises therapy based on clinical evaluation with evidence provides an improved functional ways even with chronic ailments among geriatric subjects.

***Key words:*** Radiculopathy, Transcutaneous, Electrical Nerve Stimulation, Laminectomy, Neck Disability Index, Visual Analogue Scale



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## INTRODUCTION

- Cervical radiculopathy is a common disorder which can lead to significant clinical morbidity (Grabraith *et al.,* 2012) with an increasing average life expectancy is becoming more prevalent (Young *et al.,* 2000) degenerative changes associated with ageing include disc herniation, osteophyte formation, hypertrophy of osteoarthritic facet joints and ligaments, this condition causing compression of cervical spinal cord and roots to present symptomatically as cervical radiculopathy (CR) (Bednarik *et al.,* 2004). The symptoms of CR are neck and brachial radicular pain with or without motor weakness or paresthesia
- Surgical intervention is reserved for those patients who have in tractable pain or progressive neurological symptoms such as decompression of the spinal cord, Laminectomy without fusion (Fehlings 1994) anterior cervical discectomy (Faiser *et al.,* 2007)
- Majority of patients with CR improve within 1-2 months with treatment including rest, cervical immobilization, NSAID, Muscle relaxants (Zennaro *et al.,* 1998)
- Most frequently involved nerve roots are cervical 6 and 7 nerve roots which are caused by C5-C6, C6-C7 disc herniation or spondylosis (Hunt and Miller 1986), through they have neck pain, most frequent reason for seeking medical frequent reason for seeking medical assistance is neck pain (Daffner *et al.,* 2003)
- In CR the role of physiotherapy including cervical traction (Bid *et al.,* 2014) manipulation, therapeutic exercises and modalities (Nadler 2004)
- CR cause significant impairment economic and social functioning from prolonged pain (Coric *et al.,* 2011)

### Background Information

Mr. XX, Aged 76 years non diabetic, normotensive with sedentary life style and desk work using computers more than 4 hours daily

C/O

Left shoulder blade pain with occasional lower neck pain since 8 months with pain down the arm up to thumb

O/E

- Obliterated cervical lordosis, anteverted scapula
- Left trapezitis
- Left supra spinal region tender ++
- Shoulder extreme ranges of all movements painful and restricted
- Cervical spine no tender regions, but movements were restricted with soft tissue tightness and posture
- Hand grip – bilateral good
- Scapular muscles were found to be weak such as rhomboids, Serratus anterior

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- Left triceps 2/5 was found weak and mild atrophied along with deltoid 3/5 with mild atrophy
- Tender lateral condyle of elbow and brachioradialis region with full elbow movements and pain free
- Pain persisting at cervical and supra scapular region increasing on activites mainly from sitting posture
- He was found to have low vitamin D at – 10ng and supplement was given by physician

**Clinical Impression Chronic Cervical Radiculopathy?**

**Hypothetical question arises from this research study were:**

- Impact of anteverted scapula on functioning of upper extremity?
- Cervical spine movements influenced by low Vitamin D?
- Myotome based exercises how effective are they?
- Does neck care including a roll of towel improves cervical lordosis?
- What is the role of shoulder bracing and neck exercises in musculoskeletal complaints of cervical spine?
- What type of exercises are useful among muscle weakness with pain and restricted movements of neck and scapula?

## MATERIALS ANDMETHODOLOGY

This study subject with chronic CR (Cervical Radiculopathy) was treated for six weeks with weekly thrice frequency in Chennai from 21.06.2017 to 10.08.2017. The following were the therapy and prognosis:

## DISCUSSION

- 24 patients with FS in turkey were studied for 3 weeks comparing electrotherapy modalities with hot pack, TENS, ultrasound with home exercises and found on VAS, DASH score with no significant difference between both groups but both groups subjects were treated with exercises (Yildiz *et al.,* 2016)
- Omar *et al.,* 2016 have in a systematic review with evidence recorded that an early reduction of pain, increase in ROM actively and quality of life with exercise modalities are better than using electrotherapy alone.
- Derya Celik *et al.,* 2010 have in a RCT among 29 subjects in a 12 week study have compared TENS and NSAID with exercises alone, have found an improved VAS score at 6 weeks and an improved and ROM by 12$^{th}$ week in exercise alone group than the first group
- RCT by Persson *et al.,* 1997 have recorded in a 3 months study that surgery, physiotherapy, cervical caller to be equally effective on pain CR
- Surgery in CR is not always successful and may lead to complications (Olaison *et al.,* 1992)
- Rai *et al.,* 2013 have recorded among 30 subjects with CR, used TENS, cervical traction and exercises Mangalore, India with an improved VAS and neck disability index
- RCT by Young *et al.,* 2009 among 81 subjects with CR, were randomly allotted in 2 groups, group I were treated with manual therapy, exercises and sham cervical traction
- for weekly five times therapy for 4 weeks found addition of cervical traction were of no benefit on pain and function in patients with CR,

**Treatment Adopted and Phased Clinical Prognosis**

| Session 1$^{st}$ and 2$^{nd}$ Week Problem Identified | Treatment Adopted | Outcome Celinically and Subjectively Achieved |
|---|---|---|
| I. Anteverted Scapula | • Shoulder bracing with mild resistance<br>• Hot pac application to shoulder and neck<br>• Neck care and posture | • Active range of cervical and shoulder movements have increased |
| I. Obliterated cervical lordosis | • Isometric neck exercises with moderate resistance<br>• Home based self exercises to neck and shoulders 10 exercises no reputations of 20 minutes | • Pain over supra scapular, neck shoulders have decreased |
| Sessions 3$^{rd}$ and 4$^{th}$ week<br>IV. Pain and weakness of common extensors of wrist. | • Closed kinematic chain exercises<br>• Myotome based exercises of 15 exercises 3 reputations 30 minutes<br>• Exercises in sitting for elbow | • An improved posture of cervical spine<br>• Complaints pain more of below elbow and down for arm<br>• ADL has improved but not driving, travelling |
| Session 5$^{th}$ and 6$^{th}$ week<br>I. ROM of shoulder with restricted AD2<br>II. Elbow painful and limiting usage of hand | • Shoulder mobilization<br>• Strengthening of elbow and fore arm hot pac usage to neck shoulder | • Daily usage has improved with arm<br>• With reduction in pain but strength needs further exercises |

**Results of Pre and Post neck disability index using student 't' test**

| ND Index | | SD | SE | t | p |
|---|---|---|---|---|---|
| Pre | 48 | 14.43 | 8.33 | 3.04 | <.05 |
| Post | 23 | | | | |

but (Angela Tao *et al.,* 2015) an Indian based study among CR with 30 patients where they were randomly allotted in two groups, with group I – received TENS and cervical neck exercises, Group – II received TENS, cervical neck exercises and intermitant cervical traction, at the end of 2nd and 4th week respectively group II subjects have shown greater result than group I, hence addition of cervical traction was reported to be more effective in the management of CR

- A multicentre report among 246 subjects with CR, 33% received surgery, where as 24-53% were managed with active and passive non operative means have shown equal outcome functionally Sampath *et al.,* 1999, and have recorded CR with severe neurological deficits and serve pain can be managed successfully using a non operative approach (Spengler *et al.,* 1990). This study subject with chronic CR have shown in 6 weeks with good prognosis as evidenced with these findings was treated only with specific exercises.
- Sal *et al.,* 1989 have recorded that therapy intervention was to be based on the severity of patients symptoms and response to previous treatment

**Conclusion**

Specific protocol for management of cervical radiculopathy were not established with evidence. However this subject with good clinical outcome measure with an improved quality of life with specific exercises can further be validated by larger sample size and long duration follow up. Including control groups, involving other physical therapy variables such as cervical traction, TENS, interferential therapy and EMG are recommended further to strengthen findings of this original research

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