ORIGINAL ARTICLE

VIMSJPT

EFFECTIVENESS OF WORK HARDENING PROGRAM IN BANKERS HAVING WORK-RELATED CHRONIC NECK PAIN IN BANGALORE

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ABSTRACT:

Backgroundand Objectives: Disorders caused due to working patterns or work related stresses are called occupational disorders.Work related neck disorders are common problems in office workers,especially among those who are intensive computer users.Banking occupation requires a lot of stereotyped movements of the arms, hands and fingers,and repetitive occupational tasks with short cycle times have become more and more frequent in modern technology as seen in this type of occupation with many of them associated with increased rates of chronic neck pain. Work place rehabilitation is necessary for work related to chronic neck pain in bankers.The objective of the study was to evaluate the effectiveness of the Work hardening program along with Conservative treatment versus Conservative treatment alone in bankers having Chronic neck pain.

Methods:60 bankers having Chronic neck pain were randomly allocated in two groups.Group A received Conservative treatment alone and Group B received a Work hardening program along with Conservative treatment.The outcome was assessed in terms of Neck Disability Scale (NDI) scores and Numeric Pain rating Scale (NPRS) scores pre intervention and post intervention.

Results: Both the interventions of conservative treatment and conservative treatment with a work hardening program were individually effective.But,the subjects treated with a conservative with work hardening program was significantly effective than conservative alone.

Interpretation and Conclusion:The present study concludes that both treatment protocols were effective in reducing Chronic neck pain.Further it was also noticed that Group B was more effective in improving neck disability and in reducing pain than Group A.Thus applying for the treatment protocol Work hardening program along with Conservative treatment was better than Conservative treatment applied alone.

Keywords: Work related neck pain, Chronic neck pain, Bankers, Work hardening program, Conservative treatment, Occupational disorders.

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INTRODUCTION

Musculoskeletal disorders encompass a collection of inflammatory and degenerative conditions that affect the joints and surrounding soft tissues of the body as well as the peripheral nerves and supporting blood vessels with resultant physical and psychosocial symptoms,mostly pain and discomfort[1,2,3].Musculoskeletal injury resulting from work related event of overexertion which occurs when workers are repeatedly exposed to forceful and prolonged activities in undesirable postures or unsympathetic environments[4].Neck pain is common in the general population. Prevalence of neck pain is even higher in office workers than in the general community,reaching levels as high as 50 to 60% [5,6,7,8].Neck pain can impact on the ability to perform normal daily activities,and the resultant treatment costs and work loss contribute to a substantial economic burden for both the individual and society [5,9,10,11].Disorders caused due to working patterns or work related stresses are called occupational disorders.It has also been noted that work stresses are more in workers using electronic operating systems as compared to workers not using them[12].

Work related neck disorders are common problems in office workers,especially among those who are intensive computer users[13,14,15].The introduction of the computer into the workplace has meant changes in work organization, and different use of worker physical and mental potential. Computer usage for prolonged duration has been linked to a high prevalence of musculoskeletal symptoms in the neck and upper extremities[3, 16.]

Office workers are frequently exposed to repetitive movement,awkward postures and manual handling tasks which are risk factors for developing musculoskeletal symptoms [3, 12].It is generally agreed that the etiology of work related neck disorders is multidimensional which is associated with, and influenced by,a complex array of individual, physical and psychosocial pressures such as time pressures and stressful work[3, 17].

Banking jobs are associated with an increased rate of pain and discomfort due to excessive computer work.This is an occupation requiring stereotyped movements of the arms,hands and fingers,and repetitive occupational tasks with short cycle times have become more and more frequent in modern technology as seen in banking jobs with many of them associated with increased rates of neck pain[1, 18].

Although substantial efforts to reduce the physical demands placed on workers the epidemiology of occupational disability and musculoskeletal disorders indicates that the problem is growing, and this is specifically evident in Industrially Developing Countries.Thus the primary focus in any physically demanding job must be to reduce the physical demands of the task,it is possible by improving the physical work capacity of the worker, while at the same time educating and training the individuals how best to execute the task[4].

Adaptation of awkward posture can also be due to poorly designed seating devices, the lack of adjustable seat heights and backrests.Ergonomically designed work station and awareness programs demonstrate an effective reduction in musculoskeletal disorders and provide benefits to employee[19].

Work conditioning and hardening are the rehabilitative approaches which are post-acute, work related, intensive, goal-oriented treatment program specifically designed to restore an individual's systemic,neurological,musculoskeletal and cardiopulmonary functions.The objective behind this program is to prepare the worker for his work in pain free and comfort zone by providing an intensive,active,rehabilitation program that addresses the worker's physical needs. It also focuses on minimizing the risk of re-injury and uses real or simulated work activities designed to restore physical, behavioral and vocational functions.

We know very well that conservative treatment helps to reduce neck pain[20] , but it is important to know whether work hardening and work conditioning programs along with conservative treatment benefit bank employees with chronic neck pain. The aim of this study was to examine the effectiveness of work hardening program in work related chronic neck pain in bankers as well as to determine whether conservative treatment with the inclusion of work hardening program has good results as compared to only conservative treatment in work related chronic neck pain in bankers

METHODOLOGY:

Outcome measures:

Neck Disability Index Scale:This scale was used to evaluate chronic neck pain and functional status of the subject. It consists of ten domains, each domain scored between 1-5.The assigned values for all completed responses are simply summed and the percentage score is been calculated. (Response summed score is divided by total score and multiplied by 100).

Numeric Pain Rating Scale:The subject was asked to make pain ratings, corresponding to current, best and worst pain experienced.

It is an Experimental study design having 60 as a sample size. Subjects were assessed for Chronic neck pain and using Simple random sampling method bankers were divided into 2 groups each of 30.

Group A: Conservative treatment- (requirement and mode selection for electrotherapy was at the discretion of the researcher)

Ultrasound-It was given to both the groups once daily for 10 min.

TENS-It was given to both the groups once daily for 10 min.

Isometric exercises and Dynamic neck exercises-Neck flexors,extensors,lateral flexors,rotators.

Chin tucks**-** Subject is sitting on a chair, takes chin in holds for 10 seconds and relaxes.

Stretching exercises**-**Upper trapezius, Pectorals,Levator scapulae,Scalene,Sternocleidomastoid.

Group B: Work hardening and conditioning :

Education and Orientation:Patients were made aware of the what is chronic neck pain, causes and about work hardening program.

Exercise program:Patients were asked to hold head high, focus eyes 15-20 feet in front of u, keep chin parallel too ground,move shoulders and arms naturally and freely, position feet shoulder-width apart.A static cycling exercise was also carried out.

Relaxation training: The patient was asked to perform Deep breathing exercises (breath in hold for 3-5 sec and breath out) first and then Progressive muscle relaxation was applied in which subject was asked to contract muscles for 5-10 sec and relax them for 10-20 sec. The second method used for relaxation training was Autogenic training in which the subject was made to imagine a calm, relaxing environment and comforting bodily sensations. A soothing environment was created through therapist instructions.

Cognitive-Behavioural therapy: Positive affirmations-coping skills was developed by creating a positive attitude in subjects mind and giving positive affirmations that he/she can work without pain.The behavioural modification was done by engaging subjects in meaningful activities and not allowing subjects to think in a negative manner.The pacing was inculcated in subjects by teaching them to accomplish the activities in a sensible and thoughtful way. The relapse prevention technique was used by taking reviews from the patient about learned therapy to ensure whether the patient is well-worsed with the exercises.Operant-Behavioural therapy was done to avoid undesirable activity such as retreating to the bedroom and strongly reinforce every step to carry out functional activities.

Ergonomic training: This subject was taught proper posture and position of the body while working in a bank on their respective desks so that the subject works in a comfortable manner. Also desk height, chair height modification was explained.

Job simulation/vocational rehabilitation: The patient was made to perform the task again and again till he/she reaches the required role (work without pain). The subject was expected to perform the replica of the task for which the first subject was made relaxed and the task was taught thoroughly.Subject was asked to reinforce the task and also to keep track of time while performing the task.If the subject was not able to grasp the entire task at a time, the task was divided into parts and each part was taught and the subject was asked to repeat the same till he/she was well worsed with the work.

Stress management :Guided imagery: The patient was asked to close the eyes and mental images were created by therapist instructions to foster a relaxed state and relieve stress.

These measurements of NDI and NPRS for neck pain were taken at the beginning and after 6 weeks of study (Duration of treatment).

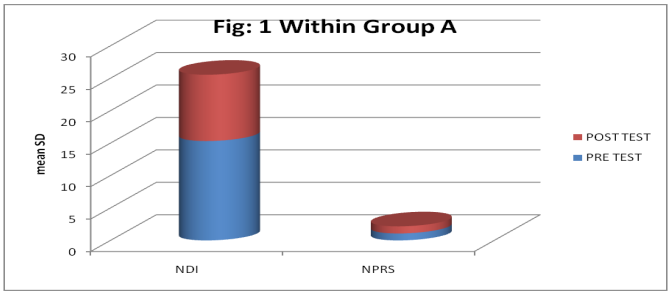
The difference between pre and post test values is compared between the groups.

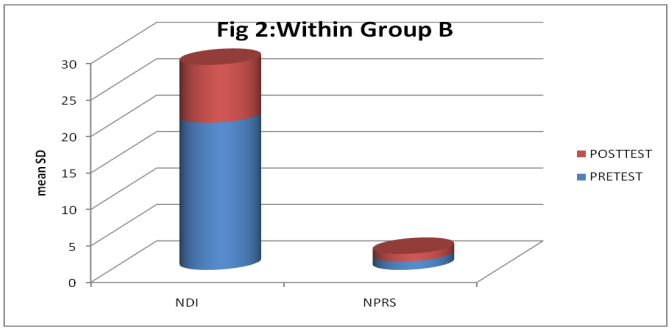
RESULTS:

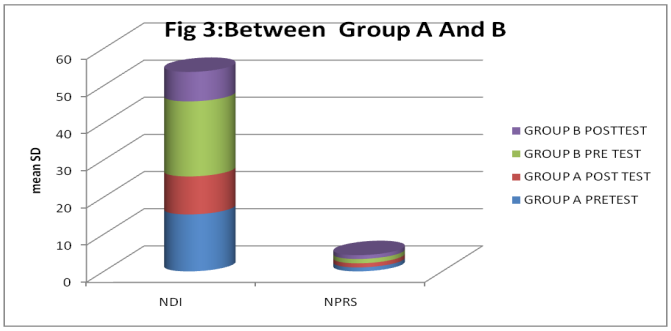
The Statistical software namely SPSS 20.0 is used. Using Chi square test gender variation was assessed which was not found to be significant as well as age was not significant between groups which were assessed using unpaired t test.

Using z Wilcoxon test comparison in pre and post test NPRS and NDI scores within group A and group B was done which was found to be significant.

Pre and Post test scores between group variation, using the Mann-Whitney U test, showed that there more reduction in pain in group B as compared to group A and thus group B was found to be significant.







DISCUSSION:

Group A exhibited a reduction in neck pain.A randomized controlled trial showed improvements were seen in chronic neck pain using isometric and dynamic exercises of neck[21].Also stretching exercises had a lot of impact in reducing the pain in a few studies done by Ylinen Jari, et al and Hakkinen, et al,[22,23] .

Ultrasound and TENS helped in the reduction of neck pain along with the exercises. Thomas TW Chiu, et al carried out a randomized controlled trial of TENS and exercises for patients with chronic neck pain which showed a significant improvement in not only pain but also in disability and isometric neck strength[24].

Our study is in agreement with the results seen in the above mentioned studies.The protocol followed in Group A further supports that incorporating conservative treatment as a part of rehabilitation exercises will aid in improving the Chronic neck pain.

In addition to an individual's academic preparation for a specific job or vocation, the importance of physical readiness is necessary. Physical readiness is particularly needed for individuals injured on the job or not comfortable performing the job[25].Thus work hardening is considered to be the last phase of rehabilitation.

Work stress and pain cause anxiety and fear in workers for his/her work.Anxiety causes blood pressure fluctuations thus releasing stress hormones in the blood and increasing muscle tension causing pain Relaxation therapy and stress management helps to reduce and maintain the blood pressure, reduce stress hormones thus reducing muscle tension and reducing pain. Catharina Gustavsson conducted a study explaining adaptive coping strategies to help in managing pain. Coping strategies directed towards pain refer to tolerate, minimize or reduce pain[26].The present study is also going consistent with the above study. Not only it had an effect on chronic pain but also it induced a sense of well being, encouragement, reduction of fear in the employee, also elevating mood.

Cognitive behavioural therapy, possessed developing positive affirmations so that positive attitude in patients towards their life can be evolved, encouraging workers to work for a long time in a comfort zone.

Cognitive reconstructing developed balanced thinking in the subjects recruited for the study which indeed helped to avoid unwanted negative thoughts in the worker's mind. Behavioural activation helped workers to engage in meaningful activities and the activity review by the therapist helped the subject to improve better in their work. Operant behavioural therapy helped subjects to pace their work well and complete it in a sensible manner and in time. It avoided deconditioning to occur in patients and strongly reinforced to function. This study is thus going hand in hand with the study where chronic pain was reduced utilizing a multidisciplinary approach demonstrated by Murphy J.L., et al [27].

Ergonomics included posture correction during work and also focused on work place design, there was a significant reduction in the amount of stress on body parts caused due to prolonged working hours and work stress. There are many studies and reviews saying ergonomic tools are increasingly found to be extremely useful not only for assessment and diagnosis but also for treatment and prevention of work related musculoskeletal disorders, workplace risks and rehabilitation[28].

Job simulation is nothing but breaking the task into 2-3 components and repeating each of them till perfect which helped the patient to inculcate the task very properly , to work for longer hours with less stress and efforts. A significant reduction was also seen in worker absenteeism also.

CONCLUSION:

The present study concludes both the treatment protocols are effective,but work hardening and conditioning along with conservative treatment are more effective.

ETHICAL CLEARANCE is obtained from the ethical committee of K.T.G College of Physiotherapy and K.T.G hospital, Bengaluru as per guidelines for Bio-medical research on human subjects, 2000 ICMR, New Delhi.

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CONFLICT OF INTEREST is nill.

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