



COMBINED EFFECTIVENESS OF COGNITIVE BEHAVIOUR THERAPY ALONG WITH NECK STABILIZATION EXERCISES IN THE TREATMENT OF PATIENTS WITH CHRONIC NECK PAIN.

Physiotherapy

Eswar Reddy. K* Professor and Guide, SIMS College of Physiotherapy, Mangaldas Nagar, Guntur, Andhra Pradesh, India. *Corresponding Author

K. Bhargav Kumar Msc clinical Psychology, Sri venkateswara psychiatric clinic, Guntur.

M. Sowjanya Maruboyina Professor, Durgabhai Deshmukh College of Physiotherapy, Hyderabad.

Venugopal Reddy. K Professor and Head, VSPM Dental College & Research Centre, Nagpur, Maharashtra, India.

ABSTRACT

BACKGROUND: Chronic neck pain is the pain in the neck continuing more than 3-6 months and has become a common problem. Neck stabilisation exercises have been proven to improve pain and disability in chronic neck pain, and there is growing evidence in the favour of the biopsychosocial approach like cognitive behaviour therapy to the treatment of chronic neck pain. However, these two techniques have not been combined. Hence this study aims to evaluate the efficacy of adding cognitive behaviour therapy to neck stabilisation exercises for chronic neck pain in reducing pain and disability.

METHODOLOGY: A total number of 30 subjects are taken in to the study and divided into 2 groups of 15 in each group. Group A subjects are given cognitive behaviour therapy by a clinical psychologist 60 min once a week for 10 weeks and neck stabilisation exercises for 40 min three times a week for 10 weeks. Group-B patients are treated with neck stabilisation exercises 40 min three times a week for 10 weeks. Neck exercises include stretching, strengthening and stabilisation exercises. Before treatment and after treatment pain was measured using VISUAL ANALOGUE SCALE and disability was measured with NECK DISABILITY INDEX.

RESULTS: The results of this study revealed that there was no significant difference between cognitive behaviour therapy and neck stabilisation exercises (Group-A) and only neck stabilisation exercises (Group-B). Pain and disability decreased in both the groups similarly without significant difference between them.

CONCLUSION: There was decrease in pain and disability in both the groups without significant difference between Group-A (treated with cognitive behaviour therapy and neck exercises) and Group-B (treated with neck exercises only).

KEYWORDS

Cognitive behaviour therapy, neck stabilisation exercises, chronic neck pain.

INTRODUCTION:

Neck pain is a very common problem which affects more than two thirds of people at some point in their lives^{1,2,3,4,5}. Neck pain, although felt in the neck, can be caused by numerous other spinal problems^{6,7,8}. Neck pain may arise due to muscular tightness in both the neck and upper back, or pinching of the nerves emanating from the cervical vertebrae⁹⁻¹⁵. Joint disruption in the neck creates pain, as does joint disruption in the upper back¹⁷⁻²⁰. With its complex and intricate construct, and the many stresses and forces that can be placed on it through a trauma or even just daily activities, the cervical spine is at risk for developing a number of painful conditions³⁴⁻³⁸.

The head is supported by the lower neck and upper back, and it is these areas that commonly cause neck pain^{42,43}. The top three joints in the neck allow for most movement of the neck and head. The lower joints in the neck and those of the upper back create a supportive structure for the head to sit on. If this support system is affected adversely, then the muscles in the area will tighten, leading to neck pain. It has been found that in people suffering from chronic neck pain, sufferers often avoid movement for fear that it will make the pain worse (kinesiophobia)⁴⁶. There is a predominance of evidence indicating an association between chronic neck pain and poor psychological health, including cognitive distress, anxiety and depressed mood. Therefore, a bio-psychosocial treatment perspective seems appropriate.

Cognitive behavioral therapy (CBT) is a type of talking therapy which aims to help people to manage their problems by changing the way they think and behave⁴⁷. It is a way of talking about: - How you think about yourself, the world and other people - How, what you do affects your thoughts and feelings^{48,49,50}. CBT can help you to change how you think (cognitive) and what you do (behavior). These changes can help you feel better. Unlike some of the other talking treatments, it focuses on the 'here and now' problems and difficulties. Instead of focusing on the causes of your distress or symptoms in the past, it looks for ways to improve your state of mind now⁵¹⁻⁵⁵. CBT can help you to make sense of overwhelming problems by breaking them down into smaller parts⁵⁶. This makes it easier to see how they are connected and how they affect you. These parts are: - A situation - Thoughts - Emotions - Physical

feelings - Actions. Each of these areas can affect the others. How you think about a problem can affect how you feel physically and emotionally. CBT aims to help people become aware of when they make negative interpretations, and of behavioral patterns which reinforce the distorted thinking. Cognitive therapy helps people to develop alternative ways of thinking and behaving which aims to reduce their psychological distress. An appropriate neck exercise program can address most of the symptoms^{59,60}. It includes neck muscles stretching, strengthening of neck and upper back muscles, neck stabilisation exercises.

The goal of adding cognitive behavioural therapy to neck exercises, is to encourage patients to take responsibility for their problems and reduce their perception of pain and disability by modifying environmental contingencies and cognitive processes. The aim of this study was to evaluate the efficacy of an approach that adds cognitive-behavioural therapy to the neck exercises in comparison with the same exercises alone in subjects with chronic neck pain.

Methodology

All subjects diagnosed with chronic neck pain were screened for inclusion and exclusion criteria. The subjects with the age group of 25-40 years were included in the study. Both males and females were included. Patients with nonspecific chronic neck pain (i.e. a documented history of pain lasting more than 3 months) and subjects willing to participate in the study were recruited. The criteria for excluding subjects were subjects with acute and subacute neck pain, Cognitive impairment (deficits in higher reasoning, forgetfulness, learning disabilities, concentration difficulties, decreased intelligence and other reductions in mental functions). All causes of specific neck pain such as previous spinal surgery, deformity, disc herniation, infection, fracture, myelopathy or malignancy, whiplash injuries, and systemic or neuromuscular diseases. Previously received cognitive behavioral therapy subjects were excluded from the study. The nature and purpose of study was explained to subjects before recruiting them in the study. Informed consent form was taken from every subject.

PROCEDURE : A total number of 30 patients are included in the

study after taking informed consent and divided into 2 groups of 15 each. Participants are randomly allocated to one of two groups. Group A subjects are given neck stabilisation exercises and cognitive behaviour therapy and Group B subjects are treated with neck stabilisation exercises alone. Group A is given treatment of neck stabilization exercises for 40 min three times a week for 10 weeks, with cognitive behaviour therapy given by a psychologist for an hour thrice in a week for 10 weeks. Group B are given only neck stabilization exercises three times a week for 40 min for 10 weeks.

STABILIZATION EXERCISES TO STRENGTHEN THE DEEP FLEXOR NECK MUSCLES:

Exercise 1: The patients are instructed to ● Lie on back with knees comfortably bent. ● Use a small rolled towel under the head if needed. ● Perform a small nodding movement, as if to look towards the toes. Don't lift the head up. Hold for 5 seconds. Repeat 10 times.

Exercise 2 Patient lies straight on the floor. ● Place one hand on the side of the head and provide gentle resistance, as if bending the head to one side. ● Hold for 5 seconds. Repeat 10 times. ● Use hand to resist small rotation movement. ● Hold for 5 seconds. Repeat 10 times.

Exercise 3 The patients are instructed to ● Lie on their tummy with hands supporting the forehead. ● Perform the small nodding movement and float the head and breastbone off the floor. ● Hold for 5 seconds. Repeat 10 times.

Exercise 4 The patients are instructed to ● Sitting in a chair, look up at the ceiling and return head back to the neutral position without chin poking forward.



Neck stabilization exercises to the patient

COGNITIVE BEHAVIOUR THERAPY:

This therapy is given by Clinical psychologist in sims college of physiotherapy after patients being administered neck stabilization exercises. The significance of pain was explained. A careful explanation of the fear-avoidance model was provided, using patient's individual symptoms, beliefs and behaviour to illustrate how chronic pain complaints are maintained in vicious circles. By doing so, the psychologist tried to modify mistaken fears and catastrophizing beliefs, and helped the patients to develop appropriate coping strategies and pacing skills. The psychologist tried to modify the experience of pain, inappropriate thinking and negative feelings and ensure prompt reactions to illness behaviours. Participants in both groups complete a number of questionnaires to find out if there has been any change to their pain levels and neck pain related disability, both at the start of the study and after the 10 week treatment program. After completion of 10 weeks study duration values of pre-treatment (taken on 1 st day of treatment) and post-treatment were analyzed statistically by using students 't' test. P



PSYCHOLOGIST GIVING COGNITIVE BEHAVIOR THERAPY

Data Presentation and Statistical Analysis

Table 1: Comparison of post VAS in Group A versus Group B

	MEAN	STANDARD DEVIATION	P-VALUE	T-VALUE
POST GROUP A	2.866	0.7432	0.5078 considered not significant	0.6708
POST GROUP B	3.066	0.8837		

Table 2: Comparison of post values of NDI between Group A VERSUS Group B

	MEAN	STANDARD DEVIATION	P-VALUE	T-VALUE
GROUP A POST	25.86	7.029	0.7922 Considered not significant	0.2660
GROUP B POST	26.53	6.696		

DISCUSSION:

Based on the results above, it is seen that subjects in both the groups GROUP-A and GROUP-B showed reduction in pain and disability and there was no significant difference between the improvements after treatment in both groups. Cognitive behaviour therapy helps decrease pain and disability by helping patients to modify their mistaken fears and beliefs, and encouraging them to adopt appropriate behaviours which induce positive attitudes towards their perceived disability⁴⁸. Under the supervision of psychologists or health professionals specifically trained in CBT, the intervention works by means of modifying maladaptive and dysfunctional thoughts (e.g. catastrophizing, kinesiophobia) and improving mood (e.g. anxiety and depression), leading to gradual changes in cognition and illness behaviour. Patients are progressively educated to view their pain and the related disability as something that can be self managed rather than a serious disease. It is based on accepting pain, developing awareness of the problem and seeking a means of coping with frightening thoughts and mood alterations^{50,55}.

Neck exercises reduce pain by increasing blood flow to the neck muscles, reduce spasms by stretching out the neck muscles. Flexibility and stretching exercises can expand or preserve the range of motion and elasticity in affected cervical (neck) joints, and thus relieve the stiffness that accompanies pain^{16,17}. Specific strengthening exercises can help maintain improved posture, which in turn can lessen or eliminate pain, and prevent further stress on your neck muscles by building strength and endurance. Neck stabilization exercises were given to restore cervical muscle endurance and coordination, maximize function, and prevent further injury. A decrease in neck pain is associated with reduced pressure pain sensitivity in neck muscles. Intensive regular training will increase neck muscle strength and range of motion, leading to improved function and less disability in patients with chronic neck pain^{30,32}. Pain had similarly decreased in both groups by the end of the treatment, thus confirming the difficulty in effectively modifying pain perception by cognitive behaviour therapy in chronic patients over time. Disability decreased in both groups by the end of treatment, but no further major improvement was observed in group-A. We may expect that helping patients to modify their mistaken fears and beliefs, and encouraging them to adopt appropriate behaviours, would have induced positive attitudes towards their perceived disability, but the between-group differences were not clinically tangible. The sources of potential bias in this study include the fact that randomisation did not lead to completely homogeneous groups. As mentioned by the psychologist, no measures related to important psychosocial variables (fear, anxiety, catastrophizing, etc) were assessed during the study limiting an adequate characterisation of the subjects; however, primary aim was not to evaluate the impact of a cognitive-behavioural treatment on psychosocial variables, but rather to assess its impact on subjects' perception of pain and disability. In conclusion, both groups showed improvements in pain and disability, but there were no clinically significant between-group differences.

CONCLUSION:

In both the groups pain and disability reduced but there was no significant difference between the groups. This shows that Group A cbt was combined with neck stabilization exercises and Group B with neck stabilization exercises were equally effective in reducing pain and disability in patients with chronic neck pain.

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