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Technology Review – Documentation based care

Technology Review



DOCUMENTATION BASED CARE

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1. BACKGROUND

Neck and back pain is an extremely common problem. It is estimated that four out of five people suffer from neck and back pain sometimes in their lives. It is usually not caused by any serious illness or damage and can be prevented if proper care or treatment is taken. Most of these pains resolve quickly, at least enough to continue normal activity. If the pain recurs often, active rehabilitation through exercise is highly recommended to improve lost function and relieve pain.

The "de-conditioning syndrome" is a major factor in chronic neck and back pain. Inactivity and guarding of the painful area lead to de-conditioning in which the structures and functions of the spine deteriorate. In this process, coordination and motor control of the spine also become impaired. The result is chronic pain and reduced tolerance to loading and movement. Reduced muscular endurance and loss of protective mechanisms increase the risk of further injury.

There were number of treatment available for chronic low back pain (CLBP) such as cognitive therapy, exercise therapy, brief educational interventions, multi-disciplinary (bio-psycho-social) treatment can recommended for non –specific CLBP. Back school and short courses of manipulation can also be considered. However the use of physical therapy likes TENS, heat/cold, traction, laser, traction, ultrasound, short wave, interferential, massage, corsets were not recommended. Pharmacological treatment use noradrenergic or noradrenergic-serotonergic antidepressant, weal opioids, and the short term use of NSAIDs, muscle relaxants and capsicum plasters can be recommended for pain relief, strong opioid can be considered in patients who do not respond to all other treatment modalities. Apart from these invasive treatments likes acupuncture, epidural, corticosteroids, intra-articular (facet) steroid injections, local facet nerve blocks, intradiscal injections, trigger point injections, botulinum toxin, prolotherapy, radiofrequency facet denervation, intradiscal radiofrequency lesioning, intradiscal electrothermal therapy, radiofrequency lesioning of the dorsal root ganglion, and spinal cord stimulation are not recommended for CLBP, on the other hand, percutaneous electrical nerve stimulation (PENS) and neuroreflexotherapy can be considered where available. Surgery is not recommended for non specific CLBP unless patients have failed to all the recommended treatments after 2 year of treatment with carefully selected patients. There is no single intervention is likely to be effective in treating the overall problem of CLBP of longer duration and more substantial disability, owing to its multidimensional nature (Airaksinen , Hildebrandt, Mannion et al, 2004)

2. OBJECTIVES

To determine the clinical effectiveness and safety of the Documentation Based Care (DBC) program in the treatment of pain in the neck and back

3. METHODOLOGY

An electronic search using HTA databases, PUBMED, Cochrane, OT seeker, occupational therapy, Pedro, trip-database, CINHALL, Medline via ESBCO search engine GOOGLE were searched using keyword *documentation based care, back pain, neck pain, spine care, mechanotherapy* without limitation. In addition, a personal communication was carried out to get the scientific evidence as stated. There were a huge number of articles retrieved. However, only 3 articles were relevant to the issue. The other papers were mostly evidence discussing regarding the therapy of patient's suffering from back and neck pain such as active rehabilitation, exercise, drug, traction TENS as well as behavior therapy.

4. TECHNICAL FEATURE

Documentation Based Care (DBC) is an international network of spine centres offering a comprehensive treatment for patients with chronic pain in the neck and back. The treatment follows international guidelines for neck and back care issued by health authorities and has shown its efficacy in several clinical studies published in medical journals. The centres operate in more than 15 countries throughout Western Europe, Australia, Asia and the USA. All centres adopt the same systematic approach, quality control, centralised training, common tools and continuous communication to ensure that the accumulated know-how is utilised in the same way in every clinic.

The DBC is mechanotherapy based and introduces special devices designed for active exercises in strictly defined range, rate and load. The DBC programme is aimed at reversing this vicious cycle. Utilising active motion and careful, progressive loading in DBC's specially designed training devices, the body's own healing mechanism is triggered. The result is strengthening of the structures and improvement of flexibility, endurance, coordination and control of the spine. Pain is also reduced.

This is a comprehensive treatment programme aiming to eradicate pain and restore normal function of the spine. The programme runs with 2 sessions per week, for 6 weeks, with each session lasting 60 - 75 minutes. During all sessions, the patient will be guided by one of licensed DBC physiotherapists. In addition, an individual relaxation and stretching programme is designed. The results of evaluations and progress checks are presented with the DBC software as verbal, numerical and graphical reports. The treatment programme can be extended for an additional 6 weeks depending on the severity of the condition.

1st session: Baseline evaluation including questionnaire, clinical examination, objective testing of mobility and EMG test (for back assessment only)

2nd session: Individual treatment session

3rd to 11th session: Treatment / functional exercises with DBC specific training devices

12th session: Outcome evaluation / progress check

DBC treatment devices represent a leading edge in the field of musculoskeletal rehabilitation and incorporate exclusive features. The devices support the gradual regaining of correct physiological arcs of movement. Therapeutic exercises are facilitated by correct body positions supported in the DBC devices. A patented hip-lock system allows precise targeting of exercise impacts on the most important muscles in the back. Anatomical cushions complement the ergonomic designs of the equipment.

5. RESULTS

An evaluation study on active range of cervical motion in healthy subjects and in spine disorders DBC equipment validity in complex cervical motion evaluation, the result showed that the active range of movement (AROM) was significantly decreased in patients with chronic & acute neck pain. It was also found that DBC-3CR device is useful in AROM evaluation. AROM in healthy subjects decrease with age, but is sex-independent parameter. In cervical spondylitis AROM is symmetrically reduced as far as rotation and lateral flexion are concerned. Acute cervical pain results in symmetric AROM limitation (Tederko et al, 2004, *level 8*) Another retrospective non controlled trial case series study done in Singapore showed that more than 70% of the patients reported positive changes in pain and function, it also found that there were positive changes in lumbar mobility, back endurance and multi-fidus fatigue rate, subjectively, patient reports less pain and improved activities after 12 sessions of intensive DBC training (Anuar & Sim, 2003, *level 5*). A survey was carried out on 143 patients who attended a 12-week multidimensional back treatment program that emphasizing active functional restoration, the study results showed that 79% of the subjects reported subjective decrease in low back pain during the 12-week restoration program, it was also found that there was approximately 80% simultaneous increases in isometric strength and mobility. However, the correlations between physical functioning parameters and pain reduction were low. The baseline strength and mobility values did not differ between those who benefited from the treatment regarding pain and those who did not. Thus, absolute levels at the baseline or magnitude of changes in the measurements of maximum isometric strength or mobility were not associated with pain reduction. The results also indicate that there was a significantly subjective pain reduction that associated with improvement per se in trunk muscle function and spinal mobility during active functional restoration, but not with the magnitude of the improvements. Thus this should be considered when designing rehabilitation programs and outcome criteria for rehabilitation (Taimela & Harkapaa, 1996, *level 9*).

Clinical evidence claim by DBC

Thousands of patients have already been treated with the active DBC method worldwide. DBC International collects the results from each unit as quality control measure. Highly convincing clinical results have been achieved, with response rates consistently exceeding 80% in pain reduction and functional gain. In addition, follow up results demonstrated that DBC can reduce absenteeism and subsequently decrease loss in

productivity and cost of early retirement (<http://physio-ttsh.netcare.com.sg/htm/dbcone.htm>, 24/11/2005).

In Malaysia, the latest quality assurance report which is up to mid 2005, showed that the percentage of patients experiencing 82.4% less pain (new @DBC).

Data on treatment results obtained in DBC clinics show that the well-being of a large majority of patients is improved even in severe cases. A randomized control trial showed that DBC treatments have been proven effective in chronic pain (Kankaanpää et al. 1999, *Level 4*).

There were vast articles submitted by DBC, however, all the evidence submitted was discussing regard like using electromyography to measure the fatigue in patient with low back pain, active rehabilitation is useful in improving of lumbar muscle endurance, decrease pain intensity, epidemiology data etc.

6. CONCLUSION

There is moderate evidence to support the effectiveness of DBC in treating patient suffering from back and neck pain

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