

Tennis elbow or lateral epicondylitis health and social care essay



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INTRODUCTION

Tennis elbow or Lateral Epicondylitis (LE) is defined as the tendinitis of extensor carpi radialis brevis (Goguin and Rush 2003). The cardinal sign of lateral epicondylitis are pain on palpation over lateral epicondyle and on stretching of the extensor muscle especially extensor carpi radialis brevis, weakness during grip strength testing (Vicenzino 2003; Vicenzino and Wright 1995). It is four time more common in the fourth decade than any other decade (Manchanda and Grover 2008). This is most commonly an idiopathic or a work related condition (Boyer and Hastings 1999). The population presenting higher proportion of LE are tennis player, fish processing worker and the worker working in industries requiring repetitive manual tasks. Sometime as high as 15% (Chiang et al. 1993; Ranney et al. 1995). LE is an intriguing condition because the underlying pathology is not as simple as the clinical picture displayed (Vicenzino and Wright 1996). Various studies have shown that the pain mechanism of LE may be one of secondary hyperalgesia (Wright et al. 1992, 1994; Smith and Wright 1993) representing disordered neural processing characterized by central sensitization (Sluka 1996; Sluka and Rees 1997). There are studies which shows degenerative changes in the connective tissue rather than inflammatory markers (Nirschl 1989; Verhaar et al. 1993), raised level of glutamate, an excitatory amino acid in the common extensor origin of patient with LE in the chronic stage. Therefore it can be stated that the term of lateral epicondylitis is an inappropriate term, as there are many other mechanism involved apart from only inflammation of the tendon. Waugh 2005 recommended that the correct terminology that describe the underlying degenerative process should be replaced from ‘

epicondylitis' to ' epicondylosis' or ' epicondylalgia'. The way it is difficult to understand the underlying pathology, similarly it is difficult to manage this condition successfully because the evidence that is available regarding the treatment of LE are of poor methodological quality (Labelle et al. 1992). One of the emerging therapy that can be used for treating musculoskeletal disorders is Manual therapy. Manual therapy includes a variety of technique that targets skeletal system, soft tissue, and nervous system when used for treatment of musculoskeletal pain and it is applied in clinical practice (Bialosky et al. 2009). Various studies have shown the effectiveness of Manual therapy technique in carpel tunnel syndrome (Burke 2007), knee osteoarthritis (Deyle et al. 2000), and hip osteoarthritis (MacDonald et al. 2006). Recently a new manual therapy technique termed ' Mobilization with Movement' (MWM) has been developed by Brian Mulligan (1995) which has been found effective in treatment of LE. It involves application of sustained lateral glide to the elbow joint while an exercise, activity or movement is performed. Mostly the strengthening exercise that is painful on testing but painless during the sustained glide (Mulligan 2010). The aim of this essay is to discuss the effectiveness of the MWM in the management of the lateral epicondylalgia.

Effects of MWM on LE

In past it was suggested that the main mechanism behind the effectiveness of the MWM, as mentioned in the teaching text of Mulligan is related to minor positional fault that occur secondary to injury which lead to maltracking of the joint causing symptoms such as pain, stiffness or weakness (Mulligan 2004). The cause of positional faults has been suggested as changes in the

shape of articular surface, thickness of cartilage, orientation of fibers of ligaments and capsules, or the direction and pull of muscles and tendons. MWM repositions the joint leading to its normal tracking (Wilson 2001). This was evident in a quasi-experimental study by Kavanagh (1999) that attempted to measure joint position on application of the antero-posterior glide MWM of the inferior tibio-fibular joint in 25 subjects in which 6 had acute ankle sprains, 2 had chronic ankle sprain and 17 were normal. The outcome measure was force displacement relationship of distal fibula. It was found that 2 out of 6 acute ankle sprains demonstrated greater posterior displacement per unit force which was sufficient to support the hypothesis of positional fault but this study did not report any effect on pain or range of motion (ROM), whereas the pain is the most significant effect of MWM. Findings showed by Hsieh et al. (2002) in a case study is in contrast to the hypothesis of positional fault. On the post traumatic thumb injury, Magnetic Resonance Imaging (MRI) was used to measure the effect of MWM on the joint position, it was found that MRI identified a positional fault of the metacarpophalangeal (MCP) joint of the thumb before the intervention which was reversed during the MWM but this was not found after the discharge though there was full resolution of pain and pain free range of motion (ROM) of MCP joint of thumb. This implies that the long term pain relieving effects of MWM are independent of permanent changes in the positional fault and the long term effect of MWM occur via other mechanisms. An alternative to the theory of the positional fault as the source of effectiveness of MWM, is the theory of neurophysiological effect which was suggested by Abbott (2001). In a non- experimental study, the shoulder ROM was investigated before and after the single intervention of MWM at the elbow joint in patient <https://assignbuster.com/tennis-elbow-or-lateral-epicondylitis-health-and-social-care-essay/>

with LE. It was found that the patient with LE had significant difference in the external ROM between affected and unaffected shoulder before the intervention. After the intervention of MWM to both the elbow joints i. e. affected as well as unaffected, there was significant increase in the external and internal ROM of the shoulder in both affected and unaffected shoulder. On the basis of this finding Abbott (2001) postulated that the technique may act neurophysiologically to decrease the level of contractile activity of the shoulder rotator muscle. But, due to lack of control group there was no group comparison of the finding over time and only one outcome measure was used. Also there was no follow up which makes it difficult to conclude that the effect was long term or short term. Due to lack of blinding the findings could be biased. Along with the neurophysiological effect, MWM illustrate physiological effects as well which was shown by Paugmali et al. (2003). In an RCT Paugmali et al. (2003) examined whether MWM on elbow produced physiological effects such as hypoalgesia and sympathoexcitation in patients with LE. The treatments (MWM lateral glide to elbow, placebo and control) were randomized to participants and each participant completed the 3 randomized treatments at the same time of the day, 48 hrs between each sessions. It was found that the MWM showed hypoalgesic effects with simultaneous sympathoexcitation. There was increase in the Pain Free Grip Strength (PFGS) and Pain Pressure Threshold (PPT) in the treatment group whereas there was no change in Temperature Pressure Threshold (TPT) in the treatment and placebo group but, there was reduction in the control group. MWM produced a mean increase of 4.1 %, in HR, 3.5 % in systolic BP, 3.1 % in diastolic BP in the treatment group only which suggest that MWM activate the SNS functions. The only drawback of this study, there was <https://assignbuster.com/tennis-elbow-or-lateral-epicondylitis-health-and-social-care-essay/>

no follow up and it was carried out in controlled environment which is not realistic. Whereas the strong points of this crossover trial is that the assessor was blinded and the number of subjects was adequate to produce a high power which makes the study of good quality. Vicenzino et al. (2001) determined whether MWM produces hypoalgesia and compared the effect on both affected and unaffected sides on 24 patients with unilateral LE, who were randomly assigned to treatment, placebo and control group. The outcome measures used were PFGS and PPT, the findings were there was significant increase in the PFGS and PPT after MWM compared to the placebo and control group but, these findings were evident only in the affected side. The hypoalgesic effects produced by MWM are nonopioid-mediated (Paugmali et al. 2004). Paugmali et al. 2004 evaluated the effect of naloxone on the initial hypoalgesic effect of MWM, where all the participants were given intravenous naloxone, saline or no-substance control on 3 different occasions, lateral glide MWM to the proximal radius and ulna was given immediately after the injection. Post MWM showed average improvement of 29% in PFGS, 18% in PPT, 16% in ULTT (Radial nerve) and 0.2 % in TPT. This finding suggests that naloxone did not antagonize the initial hypoalgesic effect of MWM in the treatment group. Failure of naloxone to antagonize the initial effect of hypoalgesia implicates the involvement of nonopioid and possibly noradrenergic endogenous pain modulation mechanism. The study did not discuss the time required for naloxone to show its effects and as the assessments were taken immediately after the treatment, it is difficult to say that naloxone would show any effect on the treatment and assessment (Hing et al. 2009). The finding of hypoalgesic effect were in contrast with the findings of the study by Slater et al. (2006). In an RCT, Slater et al. (2006) <https://assignbuster.com/tennis-elbow-or-lateral-epicondylitis-health-and-social-care-essay/>

examined the effect of lateral glide MWM in the healthy individual with induced LE pain and it was found that there was no significant between-group differences in visual analogous scale (VAS) profile, pain distribution, induced deep tissue hyperalgesia or force augmentation. These findings suggested that lateral glide MWM does not activate mechanism associated with hypoalgesia or force augmentation in the subjects with experimentally induced features of LE. Though this study used experimentally induced features of LE, and not actual patients with LE. This indicates that in patient with chronic LE the pain associated with prolonged central sensitization is operated by different neural mechanism (Slater et al. 2005).

Efficacy of MWM

Reduction in pain is critical to the success of the MWM which is implied by the fact that the pain improves more rapidly than functions (Vicenzino and Wright 1995). In a single case study (Vicenzino and Wright 1995) the effects of MWM were investigated on pain and functions on the patients with LE. The treatment sessions consisted of 6 sessions over 5 weeks including 2 weeks of assessment, 4 session of treatment over 2 weeks and 6 weeks of post treatment assessment. During the treatment weeks the patient was given home exercise programme consisting of self-MWMLE, stretching and gripping within the limit of the pain. After every treatment session the elbow was taped. There was significant improvement in the pain and function after 6 week with a strong correlation that showed that the functions increased as the pain decreased ($P < 0.0001$). This showed that the primary mechanism of action is related to its direct effect on pain. Since it was a case study the finding cannot be generalized also the patient had undergone many

treatments before coming in the study hence it is difficult to state that MWM caused the desired effect. When the MWM start showing its beneficial effects on functions, PFGS improves more significantly than Maximum Grip Strength (MGS) which was suggested by Abbott et al. 2001. A non- experimental study (Abbott et al. 2001) was conducted to determine whether PFGS and MGS increases after one treatment session of MWM on both affected and unaffected side. In this study 25 patients with LE were studied, all patients were given treatment. The outcome measures were assessed before and after the treatment session. The findings were that 92% of patients responded to the treatment and they were able to do pain free movements which were painful before the treatment. There was also increase in the PFGS by 17% whereas MGS increased by 5% but only in affected arm. Due to lack of control and comparison group, the internal validity of this study is compromised. Due to faster reduction in pain, MWM facilitates the exercise to boost the recovery phase. Kochar and Dogra 2002 suggested that if MWM is combined with the programme regime of ultrasound and progressive exercise, the recovery of the patients with LE is augmented. In an RCT 66 patients were randomised to two groups, group 1 was given MWM and Ultrasound (US) and an exercise programme. Group 2 was given US and exercise programme. The subjects who were unable to visit the department regularly were allocated in the control group, which was given no treatment programme. The outcome measures were VAS, grip strength and weight test. The follow up was done in week 1, 2, 3 and after 4 months. It was found that the VAS score reduced by 5.9cm in group 1 which was higher than the group 2 which showed reduction by 1.67cm and group 1 could lift heavier weight than group 2 and control group from 2nd week. Grip strength in <https://assignbuster.com/tennis-elbow-or-lateral-epicondylitis-health-and-social-care-essay/>

group 1 improved more significantly from 22.74kg- 31.57kg in the 3rd week compared to the control group, but no significant difference was found in group 2. The results of this study should be interpreted with caution as the demographic of the control group are likely to be different from the treatment groups as the control group was not randomized and the comparison with the control group cannot be made with full certainty. Due to lack of blinding the findings could be biased. Also no treatment was given to the control group which suggest that the effect that occurred in the treatment group could be recognized as placebo. The findings are similar even after giving treatment to the control group (Amro et al. 2010). In an experimental study design (Amro et al. 2010) 34 patients with LE were divided in two groups, MWM and traditional treatments i. e. Thermal treatment, massage, US, strengthening and stretching exercise was given to the patient in experimental group and only traditional treatment was given to the control group. After 4 week it was found that there was statistically significant improvement in VAS, MGS (Maximum Grip Strength), and Patient - Rated tennis elbow evaluation. The mean improvement in VAS and MGS was higher in experimental group than the control group. Due to lack of randomization the characteristic of subject in both the groups may create potential bias in the outcome measures, also the sample size was smaller. To support all the beneficial effects of MWM an RCT with a larger sample size and a good follow-up is required which was done by Bisset et al. (2007). The long term effects of MWM compared to corticosteroid injection and wait and see approach was studied. It was found that MWM is superior to corticosteroid injections but not significantly different from the wait and see approach in long term. In a RCT 198 patients with LE were randomized to 3

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groups of corticosteroid injection, physiotherapy treatment and wait and see approach. The outcome measures i. e. global improvement, grip force, assessor's rating of severity, VAS and pain free function questionnaire for elbow disability were measured after 6 weeks and 52 weeks. It was found that corticosteroid injection showed better effects at 6 weeks but, there was high recurrence rate thereafter and the long-term effects showed poor outcomes compared to Physiotherapy (PT). PT was superior to wait and see approach at 6 weeks but there was no significant difference after 52 weeks with both showing successful outcome measures. Due to the beneficial effects of PT than corticosteroid after 6 weeks the authors postulated that, though the corticosteroid injection are useful for the short-term benefits but due to its high recurrence rate it should be avoided and PT should be implemented as it has more long-term benefits. The superiority of PT over wait and see approach in short-term effect can be due to the discrepancy in the treatment sessions in all protocol. Due to good external and internal validity the findings are useful.

CONCLUSION

Though there is disparities in the studies regarding methodology and sample size but, many studies have used reliable outcome measure which ensures that the short term as well as long term effects of MWM are beneficial and the results were reliable. Also, along with positional fault there are neurophysiological as well as physiological effect that acts centrally and peripherally. Based on the evaluation of the above studies it can be stated that though there are less number of good quality studies regarding MWM, it is still an advantageous conservative and pain-free technique and it will be

productive if incorporated in the treatment regime of the patients with LE in the clinical practice.