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Efficacy of Kaltenborn grade III mobilizations, muscle energy techniques and their combination to improve range and functional ability in adults with mechanical neck pain

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Background: Previous literature had proved the significance of physiotherapy as an effective management in the management of mechanical neck pain, still there was lack of literature seen supporting the effectiveness of different physiotherapy interventions with their doses targeting specific group of population (adults/students only). The aim of this study was to see the efficacy of Kaltenborn grade III mobilizations, muscle energy techniques and their combination to improve range and functional ability in adults with mechanical neck pain.

Materials & Methods: A quasi experimental study on 72 freshly diagnosed patients with mechanical neck pain was conducted in Physiotherapy Department of Fatima Memorial Hospital Shadman. Those patients were randomly divided in 3 groups (Mobilization group, METs group and Combination group). There was no significant difference between age, educational year, computer using hours, duration of pain and initial NDI score and its percentage. NDI scale and goniometry was used as an assessment tool to measure the outcome of treatment in different groups before and after treatment (follow up 1 week).

Results: According to the results, there was significant improvement seen in Combination group (Mobilization and METs) in terms of pain, which decreased from 7.70 ± 0.69 to 1.25 ± 1.93 ($p=0.00$), gain in ROM e.g. cervical flexion (27.29 ± 2.38 to 37.54 ± 3.14), right SF (from 30.20 ± 2.84 to 41.45 ± 3.84), left SF (from 32.62 ± 4.5 to 43.25 ± 3.75), RR (from 43.25 ± 5.7 to 57.33 ± 3.0) and LR (from 48.08 ± 6.8 to 58.50 ± 3.4). Whereas, marked significance ($p=0.00$) was seen in the NDI score and percentage of Combination group (from 33.12 ± 3.5 to 3.29 ± 7.7 and 67.50 ± 6.3 to 6.67 ± 15.5 , respectively). ANOVA tells us that difference was significant in all 3 groups as $p=0.000$ in categories of pain (VAS), gain in cervical (flexion, right SF, left SF, RR, LR) and NDI score and percentage as $p=0.000$. Combination group had significant ($p=0.00$) difference within the groups then METs and Mobilization group in all categories of pain (VAS), gain in Cervical (Flexion, Right SF, Left SF, RR, LR) and NDI score and percentage. However, METs and Mobilization difference was not significant within the group.

Conclusion: Combination of Grade III Kaltenborn and METs was seen more effective in terms of improving mechanical neck pain, in smaller treatment session (7 days only).

Recommendations: Further studies are also required to compare the long term effects of combination of treatment i.e. they are effective in improving quality of life in long term. Are they effective in improving endurance of the patients? And treatment combinations that will result in long term effective results need to be investigated.

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