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Dynamic balance decreased in postdromal migraineurs compared to non migraine controls

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Introduction

Balance is a complex process involving visual, vestibular and neuromuscular control. Migraineurs often report vertigo and dizziness symptoms during and post migraine. The Biodex Balance System SD 1 is a reliable method to measure dynamic balance. Little research 2 has examined dynamic balance in migraineurs compared to individuals who do not have migraines.

Purpose

The purpose of this research is to examine the differences between migraineurs and controls dynamic balance at two testing intervals: baseline (migraine free 7 days) and post migraine (within 48 hours of migraine onset).

Methods

20 controls (C) (age 25.70± 10.77) and 17 Migraineurs (M) (age 25.24± 9.55) completed dual limb support testing on the Biodex Balance System SD. Limits of Stability (LOS) testing at moderate skill level (75%) involved center of gravity control within their base of support. The clinical test of sensory integration and balance tested stability and sway indexes within four conditions (eyes open/closed on firm vs foam surface) for 30 second intervals.

Results

A repeated measures ANOVA revealed significant differences [mean diff (post-pre) C=7.06±5.57, M=2.68±7.45, p=.029] between migraineurs and non-migraineurs in overall LOS post migraine. Significant decreases were found between shift of balance to the right [mean diff (post-pre) C=14.71±17.69,M=-2.18±16.97, p=.034] and balance to the left [mean diff (post-pre) C=9.88±15.77, M= -3.75± 22.1, p=.019] post migraine. No significant differences were found between groups for overall LOS at baseline (p=.703). No significant differences were found between groups for stability or sway indexes for all conditions on the clinical test of sensory integration.

Conclusions

Migraineurs exhibit difficulty with center of gravity shifts to the right and left and overall dynamic LOS post migraine. Once LOS is exceeded a fall, stumble or step will ensue. This suggests decreases in lower extremity strength, proprioception and vestibular deficiencies.

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