Effects of osteopathic manipulative treatment on vestibulo-ocular reflex gain-symmetry assessed with video head impulse test.

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Background:
Gaze stability and postural control are provided by the vestibular system, integrated with visual, proprioceptive and other extra-vestibular information. The vestibulo-ocular reflex (VOR) gain-symmetry is an indicator of vestibular system functionality. The video head impulse test (v-HIT), is sometimes chosen in patients with suspected vestibular disorders, permitting a reliable and safe detection of peripheral vestibular functional impairment\textsuperscript{1}. The aim of the present investigation is to assess the safety and the effects of OMT on VOR gain-symmetry in young healthy subjects.

Methods:
One hundred and fifty young healthy subjects (age 19-30) were enrolled and randomized in three groups, where the Group A underwent OMT, the Group B sham OMT and the Group C was a control group. All the patients were clinically examined by an ENT specialist and asked to complete the dizziness handicap inventory (DHI). Those who underscored the DHI cut-off were assessed at baseline using the v-HIT(T0). Then, a 30-minute post-intervention assessment (T1) and a 1-week follow-up (T2) were carried out in the groups.

Results:
The statistical analysis was performed on 139 patients (75 males, 64 females, average age 21.79) since 11 patients dropped out (6 – 4% exceeded DHI cut off, 3 – 2% baseline v-HIT outliers, 2 measures not completed). For the statistical analysis, the Kruskal-Wallis median test was applied within the groups comparing T0 vs T1 and T0 vs T2. There was a statistically significant reduction of asymmetry only in OMT group (T0vsT1= -2.91\pm5.58 %, p=0.02); group B (T0vsT1=+2.08\pm7.03, p=0.24); Group C (T0vsT1=-1.38\pm4.83, P=0.17).
Panel A represents OMT group in assessment times, panel B sham OMT group, panel C control group.

**Conclusions:**

Signs of vestibular impairment or adverse effects did not occur within subjects who underwent OMT. Moreover, in the short term, OMT improved VOR gain-symmetry in young healthy subjects. Nevertheless, the contribute of this finding is propaedeutic for further research on the potential role of OMT in patients with chronic or recurrent vertigo.

**References**