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Introduction

Video Head Impulse Test (v-HIT) systems often have detection algorithms integrated in their software that detect head impulses containing either head or eye movements that do not meet certain predefined criteria. It is, however, often a prerequisite for the examiner to manually clean up the dataset upon completion of the v-HIT due to artifacts.

To evaluate whether the gain values of all semicircular canals (SCCs) are significantly altered by manual cleaning using two different v-HIT systems.

Material and Methods

120 subjects with previously neither vestibular nor neurological disorders underwent four separate tests of all six SCCs with either EyeSeeCam® or ICS Impulse®.

An experienced ENT Specialist did two complete tests, and two tests were done by a medical student. All tests containing noise/artifacts or outliers underwent manual data selection by the experienced ENT Specialist. A paired T-test was performed to compare mean gain values based on unsorted data and gain values based on the sorted data.

Results

Based upon the unsorted and sorted dataset, a paired T-test showed significant differences of the vertical SCC mean gain values with ICS Impulse®.

No significant differences were found with EyeSeeCam® (all six SCCs) and with ICS Impulse (the two horizontal SCCs).

Conclusions

Mean gain values for all six SCCs with EyeSeeCam® and mean gain values for the lateral SCCs with ICS Impulse® were not significantly altered by manual data selection. However, manual data selection following vertical SCC testing with ICS Impulse® did significantly alter mean gain values. None of the two VHT systems, however, showed any clinically important effect(s) of manual data selection.

In total, more impulses were deleted with EyeSeeCam®. However, larger differences between mean gain values based on the unsorted and the sorted data were seen with ICS Impulse®. A linear mixed effects model showed that the level of examiner experience did not influence the need for subsequent manual data selection.