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Intra-rater reliability of pressure pain threshold using a digital algometer

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Background

Pressure pain thresholds (PPT) has been the main sensory modality studied in headache disorders. It is usually repetitive, leading to potential variability between measurements. Since threshold estimation relies on the observer, patient, body site, and the device used, it is important to assess measurement reliability in the specific clinical and methodological scenario to be studied in order to minimize error.

Objective

The aim of this study is to confirm intra-rater reliability of PPT in the head of adults using a digital algometer device.

Methods

PPT was measured with a digital algometer in 3 consecutive assessments conducted 10 min apart. Eight sites were measured in each time at the occipital, temporal and masseter regions bilaterally, frontal and vertex at midline. The reliability using intra-class variability (ICC) and covariance were calculated between times 1, 2, 3, and all times versus the mean. Scores above 0,75 were considered as having excellent reliability.

Results

Ten healthy volunteers aged (21-55) were studied. The sum of all sites measured in the head was 2,182 (±672) KPa for the first measure, 2,085 (±626) KPa for the second, 2,185 (±685) for the third, and 2150 (±685) KPa for the mean. All ICC coefficients calculated were 0.975 or higher in all areas.

Conclusions

We concluded that one PPT measure in the head with a digital algometer is as reliable as 3 repetitive measures The intra-rater reliability for PPT is considered excellent. Future studies assessing pain vulnerability or predicting headache occurrence can be performed without a significant risk of bias.

Keywords: Pressure PainThreshold, Algometry, Reliability, Intra-class.