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P019

### Spectral Analysis of Postural Sway During Cognitive Dual Tasks in Patients with Haemophilic Arthropathy

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**Introduction:** The postural control is characterized by automatic and cognitive control components and, inside the automatic control system, is critical the somatosensory information from load joints. Moreover, the postural assessment during cognitive dual tasks can allow the isolation of automatic control component. Furthermore, the frequency analysis of the center of mass oscillation, specifically the power between 0.5 and 1 Hz, determines the contribution of the somatosensory system in the postural control. The aim of this study is to determine if the contribution of the somatosensory system in the bipedal postural control with closed eyes during dual tasks is associated with joint dysfunction.

**Methods:** The bipedal postural control with closed eyes combined with the task of counting down from 100 in threes was evaluated. Three repetitions of 30 s were performed. The center of mass oscillation was recorded using accelerometry and the power contained in the frequency band of 0.5 to 1 Hz was analyzed. Joint dysfunction was determined by the Gilbert score and the Hemophilia Joint Health Score (HJHS). To facilitate the analysis, the scores of the four load joints (knees and ankles) were totaled, allowing a single score. Statistical analysis includes the Pearson and Spearman correlation (according to data normality) and a simple linear regression analysis. The level of significance was set at  $P \leq 0.05$ .

**Results:** A total of 13 patients with severe A haemophilia were evaluated (Age:  $21 \pm 3$ ; BMI:  $22.1 \pm 2$ ; Gilbert score:  $8 \pm 6$  and HJHS:  $21 \pm 15$ ). A high negative correlation between the contribution of the somatosensory system, and the Gilbert ( $R = -0.631$ ) and HHJS ( $R = -0.713$ ) scores was observed. According to the regression model between the power contained in the frequency band of 0.5 to 1 Hz and the Gilbert and HHJS scores, a coefficient of determination of  $R^2 = 0.398$  and  $0.509$  respectively was obtained.

**Discussion/Conclusion:** The contribution of the somatosensory system in the bipedal postural control during dual tasks is negatively correlated with the joint dysfunction. Future studies should deepen in other clinical aspects of this analysis method in order to be used in the daily practice in patients with hemophilic arthropathy.

**Disclosure of Interest:** None declared.

P020

### Comparison of Joint Health in Adult Hemophilia Patients Within WFH Twinning Program Tallinn – Helsinki

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**Introduction:** Preserved musculoskeletal function is a major outcome among hemophilia patients, as frequent joint bleeds cause permanent disability affecting quality of life. Management of hemophilia in Estonia occurs in general hematology departments, which have their main focus at hematological malignancy and less attention to bleeding disorders. To improve hemophilia management, World Federation of Hemophilia approved the Twinning program between North Estonia Medical Center (NECM) in Tallinn, Estonia and Helsinki University Hospital/(HUH), Finland in November 2013. NEMC follows 36 patients, 35 male and 1 female (age 18–73 years) with hemophilia: 14 patients with severe (1 with inhibitors) and 20 patients with mild or moderate hemophilia A and 2 patients with severe hemophilia B.

**Methods:** Our objective was to evaluate the joint health in our hemophilia patients with Hemophilia Joint Health Score (HJHS) version 2.1 method by physiotherapist. Twelve patients with on demand (OD) treatment and 2 with continued secondary prophylaxis (SP) from childhood were included during 2013–2015 for HJHS determination. The median age of the patients was 31 (range 18–43) years. In 5 patients knee arthroplasty (2009–2014) had been performed. In one 34-year old patient with moderate hemophilia A HJHS was performed before and after bilateral knee arthroplasty.

**Results:** The median HJHS in OD-treated hemophilia patients was 6 (range 4–16) in 3 mild, 32 (14–56) in 4 moderate and 53 (29–75) in 5 severe patients. The