The gait pattern of children with HIV encephalopathy and spastic diplegia – A two year follow-up study

**OBJECTIVES**
Recent study shows that 63% of children with human immunodeficiency virus encephalopathy (HIVE) attending a HIV clinic in Cape Town, South Africa, were diagnosed with spastic diplegia. Gait abnormalities reported in children with HIVE and spastic diplegia show some similarities with what is reported in children with spastic diplegia and cerebral palsy (CP). However, the natural history of HIVE and spastic diplegia is not documented, and therefore it is unclear if similar management for secondary abnormalities in children with HIVE and CP should be given.

The aim of this study is to determine changes in gait abnormalities of children with HIVE and spastic diplegia in two years time.

**METHODS**
Fourteen children with HIVE and spastic diplegia on Antiretroviral therapy (ART) participated in the baseline study of which 12 children (age: mean 7y11m, SD 10m; GMFCS: 5 level I, 7 level II, 7boys, 5 girls) were followed-up after 2 years (mean time 2y4m, SD 2m). Three-dimensional gait analysis (3DGA) was performed using a Vicon system synchronized with frontal and sagittal digital video cameras. Based on the gait patterns (video and 3DGA graph) the participants were divided in groups.

**RESULTS**
No significant changes were determined two years after the baseline study. The study-cohort was still divided in two groups (Figure 1): Group I (n=7) with only limited abnormalities; and Group II (n=5) with more pathological gait pattern including stiff knee and equinus ankle characteristics.

**DISCUSSION**
The gait patterns of children with HIVE and spastic diplegia (Group I and II) could not be classified in the typical spastic diplegic CP gait patterns (e.g. jump, crouch gait). In addition, the gait abnormalities didn’t progress in two years time. However, the follow-up time and sample size is limited to state definite conclusions.

**CONCLUSION**
This study provides a clear documentation of gait abnormalities and short-term changes over time in children with HIVE and spastic diplegia on ART, which we feel is underreported. To establish a better understanding of the underlying neuropathological abnormalities further research is in progress. This research should result in evidence-based guidance for optimizing management of children with HIVE and spastic diplegia.

**REFERENCES**

Financial supported by: Harry-Crossley Foundation, National Research Foundation, Collaborative Initiative for Paediatric HIV Education and Research (CIPHER).
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