Abstract: Halfway review seminar, 11th May 2021  
PhD-student: Jackie Casey  
Supervisors: Elisabet Rodby Bousquet, Andreas Rosenblad, Atli Ágústsson  
External reviewers: Profs. Hans Tropp, Wade Shrader

Posture and mobility in children with cerebral palsy

Background
Posture and mobility are key problems in children with cerebral palsy (CP) and almost a third use wheelchairs for mobility. They have an increased risk for development of asymmetries, deformities, contractures and pain. This project aims to identify risk factors interfering with independent wheelchair mobility (I), associations between postural asymmetries, postural ability, and pain (II), associations between postural asymmetries, deformities and contractures and pain (III), and determine which occurs first, postural asymmetries or deformities and contractures (IV).

Method/ Results
Study I: Cross-sectional study of risk factors preventing independent wheelchair mobility in 2,328 children with CP aged 0-11 years. Cox regression was used to calculate the risk of not self-propelling based on gross motor function, hand function, upper extremity range of motion and spasticity. Poor hand function was the greatest risk factor for not self-propelling a manual wheelchair, while poor gross motor function and hand function were the greatest risk factors for not driving a power wheelchair independently.

Study II: Cross-sectional study of 2,735 children with CP aged 0-18 years. Logistic regression was used to estimate associations between postural asymmetries, postural ability and pain in supine and sitting. Inability to change position increased the risk for postural asymmetries in both supine and sitting; and asymmetric posture increased the risk for pain.

Study III: Cross-sectional study of 2,450 children with CP aged 0-18 years. Logistic regression was used to estimate associations of scoliosis, windswept hip deformity, hip and knee flexion contractures with pain, postural asymmetries and ability to change position. Severe postural asymmetries increased the risk for scoliosis, windswept hips, and hip and knee flexion contractures. Contracture and deformity of the hip increased the risk for pain.

Study IV: Longitudinal registry-based study of children with CP aged 0-5 years. Competing risk interval censored survival analysis regression models are used to determine whether postural asymmetries in supine or the deformities and contractures occur first.

Published papers