CONGENITAL MUSCULAR TORTICOLLIS

Akademisk avhandling

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This thesis is based on the following papers:

I Öhman A, Beckung E. Functional and cosmetic status in children treated for congenital muscular torticollis as infants. Advances in Physiotherapy. 2005;7:135-140.

II Öhman A. Nilsson S. Beckung E. Validity and reliability of the Muscle Function Scale, aimed to assess the lateral flexors of the neck in infants. Phys Theory Pract 2008. Accepted

III Öhman A. Beckung E. Reference values of motion and muscle function in the neck - in infants. Ped Phys Ther 2008;20(1):53-58.

IV Öhman A. Nilsson S, Lagerkvist AL, Beckung E. Are infants with torticollis at risk of having a delay in achieving early motor milestones compared with healthy controls? Dev Med Child Neur. 2008 Accepted

V Öhman A, Nilsson S, Beckung E. Stretching treatment for infants with Congenital Muscular Torticollis physiotherapist or parents, the treatment dilemma.

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Congenital Muscular torticollis

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ABSTRACT **Aim:** The purpose of these studies was to undertake a survey of functional and cosmetic status in children treated for congenital muscular torticollis (CMT), to examine validity and reliability of the Muscle Function Scale (MFS), to find reference values for rotation and lateral flexion of the neck and muscle function of the lateral flexors in the neck for the normally developing infant, to investigate if infants with CMT are at higher risk of achieving the early motor milestones later compared to a control group of healthy infants and to investigate if treatment duration is affected when stretching is carried out by an experienced physiotherapist compared to parents.
Methods: Range of motion (ROM) in neck rotation was measured with an arthrodial protractor. Lateral flexion was measured with the infant/child lying in supine on a big protractor. Muscle function of the lateral flexor muscles of the neck was measured with MFS, which was also tested for validity by a panel of experts. Physiotherapists and students tested intra-rater and inter-rater reliability of the MFS using photos. The presence of asymmetry of the face, posture and lateral band were observed and estimated according to a scoring sheet in study I. In study IV and V craniofacial asymmetry and head posture was assessed with the visual scale "severity assessment for plagiocephaly". Motor development was assessed with Alberta Infant Motor Scale. A questionnaire about time spent in prone when awake and sleep position was used. Infants with CMT were randomized to stretching treatment by physiotherapist or parent in study V.
Results: The majority of the children who had received earlier treatment for torticollis attained an overall excellent/good status and the most notable findings were remaining craniofacial asymmetry and asymmetry in muscle function. The MFS had high inter-rater and intra-rater reliability, weighted Kappa and intraclass correlation both >0.9. Reference values for the mean ROM in neck rotation in healthy infants were in mean 110° with SD 6,2° and a range of 100°-120°. In lateral flexion the mean ROM was 70° with SD 2,2° and a range of 65°-75°. Infants of two months of age had the mean muscle function score of 1, which increased to 3-4 at the age of ten months. Difference in scores on the left and right side were rare. Multiple regression analysis showed that infants in the CMT group had a significantly lower score at AIMS compared to the control group at two ($p=0.03$) and six months of age ($p=0.05$). Infants who spent ≥ three times daily in a prone position when awake, had significantly higher scores at AIMS than infants who spent less time in prone at two ($p=0.001$), six ($p <0.001$) and ten months of age ($p <0.001$). When stretching treatment was performed by an experienced physiotherapist the time to achieve satisfactory ROM in both rotation and lateral flexion was significantly ($P<0.01$) shorter compared to the parents group. Symmetrical head posture was achieved earlier ($P=0.05$) in the physiotherapist group than in the parent group
Conclusion: Most children with CMT had an overall excellent/good status at follow up after physiotherapy treatment and the most notable findings were remaining craniofacial asymmetry and asymmetry in muscle function. The MFS was found to be valid and reliable. Infants under one year of age have good ROM in rotation and lateral flexion of the neck. Infants with CMT seem to be at higher risk of achieving the early motor milestones late compared with a healthy control group. However time spent in prone position seems to have a positive influence on this. Infants with CMT gained full ROM and symmetric head posture earlier when treated by an experienced physiotherapist compared to parents. Nevertheless parents can achieve a good result within a couple of months.

Keywords: Craniofacial asymmetry, rotation, lateral flexion, muscle function, infants, reference values, torticollis, early motor milestones, stretching treatment, physiotherapy.

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