Muscle disbalance and proximal deformaties of the femur in children with myelomeningocele

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The general accepted Hueter-Volkmann law describes the inverse relation between compressive forces on the physis and the rate of physeal growth. So compression decreases and tension increases longitudinal growth. The observed deformities in patients...

Ethical review	Approved WMO
Status	Pending
Health condition type	Bone disorders (excl congenital and fractures)
Study type	Observational non invasive

Summary

ID

NL-OMON30748

Source
ToetsingOnline

Brief title
Muscle disbalance and deformaties

Condition

- Bone disorders (excl congenital and fractures)
- Spinal cord and nerve root disorders
- Bone and joint therapeutic procedures

Synonym
myelomeningocele and spina bifida

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit Twente

Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: deformatie, disbalance, femur, muscle

Outcome measures

Primary outcome

The primary study outcome is the difference in pressure distribution of the

proximal physis of the femur in normal children and children with

myelomeningocele.

Secondary outcome

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Study description

Background summary

In the clinic deformities of the proximal femur are observed in children without innervation of the m. gluteus maximus. Spina bifida, cerebro palsy and Down syndrome could cause this drop down. The deformities could lead to dislocations or subluxations of the hip joint and also to flexion, adduction and lateral rotation deformities. This research project investigates the relation between the observed deformities and muscle imbalance in children with myelomeningocele.

Study objective

The general accepted Hueter-Volkmann law describes the inverse relation between compressive forces on the physis and the rate of physeal growth. So compression decreases and tension increases longitudinal growth. The observed deformities in patients and the Hueter-Volkmann law assume the following two hypotheses: The first is that in children with meylomeningocele, the compressive forces on the medial part of the proximal physis are smaller than on the lateral part. This would lead to a more vertically directed physis and the second one is that the difference between medial and lateral compressive forces on the proximal physis in children with a weakness or total dysfunction of the m. gluteus

maximus is larger than in normal children.

Study design

This research project needs data from static and gait trails of 10 children with myelomeningocele and 3 healthy children. The measurements are at the gait laboratory of Roessingh Research and Development (RRD). During the measurements EMG signals of 8 leg muscles, VICON signals and force plate signals are registered.

Study burden and risks

The measurements take in total 2 hours. Because only static and gait trails are performed the risk for the children is small. To reduce the risk even further a physician or physiologist is present during the measurements with children with myelomeningocele.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Children (2-11 years)

Inclusion criteria

patients:
• The patients are between 4 and 12 years
• The cognitive capabilities of the patient are sufficient
• The patient is able to walk with or without walking aid;healthy children:
• The patients are between 4 and 12 years
• The cognitive capabilities of the patient are sufficient

Exclusion criteria

patients:
• The patients do not have other limitations that influence walking
healthy children:
• The patients do not have other limitations that influence walking

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Prevention

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-03-2007
Enrollment:	13
Type:	Anticipated

Ethics review

Approved WMO Date:	20-03-2007
Application type:	First submission
Review commission:	METC Twente (Enschede)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL15799.080.07