HIP SCREENING IN CEREBRAL PALSY

FAMILY and DOCTOR INFORMATION LEAFLET

Miss Caroline Edwards, Consultant Paediatric Orthopaedic Surgeon
What is hip displacement?
The hip is a large ‘ball and socket’ joint (Figure 1). Hip displacement occurs when the ball moves out of the socket (Figure 2). Children with cerebral palsy are not born with hip displacement, but it develops and gets worse as they get older. Hip displacement is brought on by two things: tight muscles around the hip and changes in the shape of the hip bones (Figure 3). Many children experience both.

How common is hip displacement?
Hip displacement is very common in children with cerebral palsy and happens in around one in three children. The risk of your child developing hip displacement can be predicted quite well by knowing their Gross Motor Function Classification System (GMFCS) level. The GMFCS is a way of describing your child’s physical ability. Your child’s doctor or physiotherapist will be able to talk to you about the GMFCS. Around 15 in 100 children with cerebral palsy who can walk by themselves (GMFCS 2) will have displacement. Children who are unable to walk develop more severe displacement. Hip displacement occurs in around 80 in 100 children who are not able to walk (GMFCS 4 and 5).

How could hip displacement affect my child?
Hip displacement can vary from mild to severe. If your child has very mild hip displacement it might not cause them any problems. Severe hip displacement can cause the movement in your child’s hips to be limited. This can make sitting, standing and walking more difficult. Tight hip muscles can also make it difficult to spread the legs apart for dressing and washing.

Why is treatment important?
Without treatment the ball may move completely out of the socket — this is called ‘dislocation’. When a hip dislocates, arthritis develops and the hip becomes painful. Hip dislocation usually happens in older children. At least half of children who have a dislocated hip will have pain.

What can be done to treat it?
Treatment depends on the child’s age and how bad the condition is. Younger children may need an operation to make the tight muscles longer. When your child is older, they might need an operation to change the shape of the hip bones and prevent the hip from dislocating. Early diagnosis of hip displacement is important because treatment is more successful when children are young. When hips become dislocated and painful, it is very difficult to treat them and there are not many options for treatment. Regular hip X-rays are needed to diagnose and monitor hip displacement in children with cerebral palsy.

What can happen without regular monitoring?
Unfortunately, hip displacement can be difficult for a doctor to see just by looking at a child’s hips. That’s why regular X-rays are so important. The following example shows a brother and sister who both have cerebral palsy — one had their hips regularly monitored, the other didn’t. The results were dramatically different.
Can my child avoid surgery?

Unfortunately, despite extensive research, hip displacement is not helped by standing frames, postural control (seating and sleep systems), botulinum toxin injections and bracing before surgery.

However excellent posture control is very good for your child and may include the above treatments to promote good movement and the best possible development.

Early surgical intervention can prevent big and difficult operations in the future. Hips that fully displace and become painful can be very difficult to treat. A dislocated hip will become painful in around 70% of cases but that may not occur until late teens or early twenties. At this stage treatment is either strong painkillers that may affect your child or further surgery with about a 50% good outcome rate.
GUIDANCE FOR MEDICAL PRACTITIONERS OVERSEEING HIP SURVEILLANCE

SOUTHAMPTON CEREBRAL PALSY UNIT HIP SURVEILLANCE PROTOCOL

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<th>GMFCS Level</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Clinical assessment and AP xray at 24 mths months or at diagnosis if older. Repeat 3 and 5 years as above, confirming GMFCS level. MP &lt;30% xray at 3 and 5 only. MP 30-39% xray biannually or if symptoms (see other referral criteria below*) MP &gt;39% refer.</td>
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GMFCS Level 2

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<tr>
<td>Clinical assessment and AP xray at 24/12 months or at diagnosis if older. If MP &lt;30% then annual xray. If stable for 2 years then stop and repeat review at 4 yrs. Repeat above if stable review age 8yrs and repeat with 14yrs as final assessment age if stable. If MP 30-39% xray at 3 and 6 months. If increasing refer. If stable 6 monthly xrays continue annual xrays until final decision review at 14 yrs. If MP &gt;39% refer. Follow GMFCS II for hemiplegia type 4 (fixed deformity at hip, knee and foot) Note surveillance required for milder hemiplegia, symptom based only*)</td>
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GMFCS Level 3 and 4

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<td>Clinical assessment and AP xray at 24/12 months or at diagnosis if older. Repeat at 6 monthly until stable. If &lt;30% annual xrays until 7yrs. If stable stop and resume annual xrays at 12years and decision review at 14 yrs. If MP 30-39% continue 6 monthly xrays until stable for 2 yrs then annual xrays until 14yrs or reaches referral criteria or &lt;30%. If MP &gt;39% refer.</td>
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GMFCS Level 5

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<td>Clinical assessment and AP xray at 12/24 months or at diagnosis if older. Repeat at 6 monthly until stable. If &lt;30% annual xrays until skeletal maturity or orthopaedic decision to stop surveillance in dislocated hip. If MP 30-39% continue 6 monthly xrays until stable for 2 yrs then annual xrays until 14yrs. If MP &gt;39% refer</td>
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OTHER REFERRAL CRITERIA
− pain arising from the hip
− clinically important leg length difference
− deterioration in hip abduction or range of hip movement
− increasing hip muscle tone
− deterioration in sitting or standing

increasing difficulty with perineal care or hygiene.

NOTES ON TAKING XRAY
1. Correct pelvic tilt, elevate legs until pelvis flat in presence of flexion deformity.
2. Legs should be neutral where possible, ie slightly abducted and patella pointing straightforward.

HOW WE MEASURE THE XRAY
Reimer’s migration index – the percentage of the ball sitting outside the socket

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