GUIDELINE

Developmental Dysplasia of the Hips (DDH)

Scope (Staff):	Nursing and Medical Staff
Scope (Area):	NICU KEMH, NICU PCH, NETS WA and KEMH Postnatal Wards

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations

Read the full statement here:
CAHS Child Safe Organisation Commitment Statement

This document should be read in conjunction with this disclaimer

Aim

Outline management of Developmental Dysplasia of the Hips (DDH).

Risk

Delays in recognition and/or management of neonates with DDH can lead to delayed referral. A standardised approach to assessment and management aims to minimise these risks.

Background

Developmental Dysplasia of the Hips (DDH) is a condition with a range of anatomical abnormalities of the hip joint in which the femoral head has an abnormal relationship with the acetabulum. This includes[1]:

- Dysplastic hip - there is an inadequate acetabulum formation (may not be clinically noted).
- Subluxable hip - occurs if the femoral head can be partially displaced out of the acetabulum.
- Dislocatable hip - when the femoral head may be displaced from the acetabulum with manoeuvres.
- Dislocated hip - the femoral head is completely outside the acetabulum.

Clinically detected neonatal hip instability ranges from 1.6 - 28.5 neonates per 1000. Long term consequences of undiagnosed or untreated DDH leads to pain in the hip, knee and lower back, gait abnormalities, and degenerative changes of the hip joint.[2] During the immediate neonatal period, laxity of the hip capsule predominates, and if

considerable enough can cause the femoral head to spontaneously dislocate. If it spontaneously relocates and stabilises within a few days, future hip development is usually normal; however, if dislocation continues structural abnormalities may develop.[3]

Audible and palpable tendinous 'clicks' can be confused with true neonatal instability of the hips. These clicks often disappear within the first few weeks after birth. A 'clicky hip' is not an indication for an orthopaedic referral in the absence of other signs of instability. Clinical examination, by performing the Barlow and Ortolani tests, is used to detect DDH. Ultrasound is used for hip imaging in the first few months following birth as the femoral head is composed entirely of cartilage, and from 4-6 months of age X-rays are more reliable. Despite clinical examination and screening practices for DDH there is a 1:5000 rate of late-onset dislocation of the hips.

Risk factors for DDH

DDH is more common in females than males (19 [females] in 1000 verses 4.1 [males] in 1000 of clinically diagnosed neonates). Other risk factors for DDH include a first degree relative with DDH and breech delivery. Oligohydramnios, birth weight more than 4000g, and foot deformities like metatarsus adductus and talipes may also increase risk of DDH. However, it is important to note that more than 60% of neonates have no identifiable risk factors for DDH, with only 1 in 75 infants with identified risk factors for DDH being diagnosed with hip dislocation.

Screening for DDH

The physical examination is the most important component of screening for DDH. **All** newborn infants should have their hips clinically checked by a clinician competent in performing hip examination - a positive examination warrants verification by a Neonatal Consultant or Senior Registrar and then referral to orthopaedics.

The physical examination should look for following signs of DDH:

1. Limb length discrepancy
2. Asymmetric gluteal and thigh folds
3. Restricted hip movements (supine: stabilised pelvis abducts to 75º and adducts to 30º under normal circumstances)
4. Positive Ortolani and Barlow tests

An educational video is available at

https://urldefense.com/v3/__https://youtu.be/IRKpoUu4OzA?si=Iw81NTD6TLedDJi-__;!!Lav448XFWxY!6PGKjkP1EsBWT35kNtWW-x1MenvxCB1HMDUAfUsmH3qBpC6pw0ZGcYNVG5NNfeClRUGCaFZknKHHE4rJ7WardwdULmJ0QizdYeg$

Ortolani Test: The manoeuvre reduces a recently dislocated hip. The newborn must be relaxed and in the supine position on a firm surface. The pelvis is steadied with one hand; examiner's index and middle fingers are placed along the greater trochanter with thumb placed along the inner thigh. With hip flexed at 90º, the hip is gently abducted while lifting the femoral head anteriorly. If test is positive, a "clunk" is felt as the dislocated femoral head reduces into the acetabulum.

Barlow Test: This is a test for laxity or instability of the hip joint. It may be performed concomitantly with the Ortolani Test. The pelvis is steadied with one hand; examiner's index and middle fingers are placed along the greater trochanter with thumb placed along the inner thigh. With hip flexed at 90º and abducted, the hip is adducted while palpating for the head falling out the back of the acetabulum. The test should be performed gently without using posterior-directed force. The test is positive if there is either lateral glide of the middle finger indicating joint laxity, a palpable clunk or sensation of movement if the femoral head dislocates the acetabulum posteriorly.

Orthopaedic referral

Orthopaedic referral is required in following circumstances:

1. Neonates with **Ortolani positive** examination (i.e. dislocated hip at rest)
2. A direct phone call is made to a member of the Department of Orthopaedics to discuss an immediate referral and arrange an appointment. An e-Referral is still required.
3. Neonates with **abnormal hip examination**
4. Refer the neonate to the Orthopaedic Clinic at PCH using e-Referral for clinical examination and ultrasound follow-up (as required) at 6 weeks corrected age.
5. Neonates **with risk factors but without clinical signs of DDH**
6. Refer the following neonates to the Orthopaedic Clinic at PCH using e-Referral for clinical examination and ultrasound follow-up (as required) at 6 weeks corrected age.
    - A history of DDH in a first degree relative
    - Breech presentation at birth: American Academy of Pediatrics recommends ultrasound screening of all infants born with breech presentation, regardless of gestational age at birth.[3] The data regarding risk of DDH born in preterm infants with breech presentation is limited and conflicting.[7,8] Hence, our current position is to refer all infants regardless of gestational age born with breech presentation for hip ultrasound at six weeks corrected age.

Note: Multiple gestation is not a risk factor for DDH. Hence, if one of the twins had breech presentation, only the twin with breech presentation should be referred.

Discharge/Follow up

Counsel the parents regarding referrals and recommended management for their 'at risk' neonate. A discharge letter should be sent to the GP to advise when an orthopaedic referral has been sent to PCH to assess for DDH.

Related CAHS internal policies, procedures, and guidelines

- Discharge Process Guideline (CAHS Neonatology)

References and related external legislation, policies, and guidelines

1. Gelfer P, Kennedy KA. Developmental Dysplasia of the Hip. **Journal of Pediatric Health Care**. 2008;22(5):318 22.
2. Dezateux C, Rosendahl K. Developmental dysplasia of the hip. **The Lancet**. 2007;369:1541-52.
3. American Academy of Pediatrics. Committee on Quality Improvement SoDDotH. Clinical Practice Guideline: Early Detection of Developmental Dysplasia of the Hip. **Pediatrics**. 2000;105(4):896-905.
4. Cady RB. Development Dysplasia of the Hip: Definition, Recognition, and Prevention of Late Sequelae. **Pediatric Annals**. 2006;35(2):92-101
5. De Hundt M, Vlemmix F, Bais JMJ, et al. Risk factors for developmental dysplasia of the hip: a meta-analysis. Eur J Obstet Gynecol Reprod Biol. 2012;165:8-17.
6. Shaw BA, Segal LS, AAP Section on Orthopaedics. Evaluation and referral for developmental dysplasia of the hip in infants. Pediatrics. 2016;138:e20163107
7. Quan T, Kent AL, Carlisle H. Breech preterm infants are at risk of developmental dysplasia of the hip. J Paediatr Child Health 2013;49:658-63.
8. Lee J, Spinazzola RM, Kohn N, et al. Sonographic screening for developmental dysplasia of the hip in preterm breech infants: do current guidelines address the specific needs of premature infants? J Perinatol. 2016:36:552-56.

Educational video is available at http://www.ddheducation.com/

This document can be made available in alternative formats on request.

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Government of **Western Australia**
Child and Adolescent Health Service

GP Letter

Notification of Referral for Developmental Dysplasia of the Hips (DDH)

GP Name…….....

GP Address……

……..

……..

Addressograph Label

Date...../ ..... /.....

Dear Dr .....

Thank you for your ongoing care of this family. This baby was identified as:

- ❑ Having an unstable (left/ right/ both) hip(s) on clinical examination.
    - The infant has been referred immediately to the orthopaedic unit at Perth Children's Hospital for further management.
- ❑ Having an abnormal examination…….
    - The infant has had an electronic referral to the orthopaedics unit at PCH for clinical review ± hip ultrasound at 6 weeks.
- ❑ Having a normal examination but has risk factors for DDH, including:
    - ❑ Breech lie in-utero
    - ❑ DDH in 1st degree relative
    - ❑ Other reason…….
        - The infant has had an electronic referral to the orthopaedics unit at PCH for clinical review ± hip ultrasound at 6 weeks.

Regards

Signature ..... Designation .....

Print Name.....

Neonatology, KEMH