Developmental Dysplasia of the Hip (DDH) is one of the most prevalent congenital orthopedic abnormalities affecting up to 10 per 1000 live births. Selective screening of infants using risk factors and hip ultrasound is important in the diagnosis of DDH and the prevention of future hip disability.

The 2015 American Academy of Orthopedic Surgeons (AAOS) Clinical Practice Guideline for DDH stated that moderate evidence supports performing an imaging study before 6 months of age in infants with one or more of the following risk factors: breech presentation, family history, or history of clinical instability (Barlow or Ortolani positive).

However, other clinical findings like benign soft tissue abduction “hip clicks” also trigger referrals for orthopedic evaluation, and the relative usefulness of risk factors remains controversial.

This study retrospectively evaluates risks factors for prevalence of DDH in infant hips referred for evaluation at a pediatric hip specialty clinic.

METHODS

- We reviewed 712 patients (1424 hips) referred for DDH evaluation at a single pediatric institution 2009-2018. Patients who were more than 3 months of age at initial visit and/or ultrasound or who had incomplete documentation, outside hospital treatment, and/or teratologic or neuromuscular hip pathology were excluded.
- De-identified patient information and initial ultrasound and radiographic data for each patient visit was entered into a Redcap database by 3 pediatric orthopedic surgeons, 2 residents, 2 physician assistants and 1 research assistant.
- Illustrations of radiographic parameters were provided to all reviewers.
- Bilateral hips were counted separately.
- Demographic details recorded at baseline: date of birth, birth weight, sex, gestational age, fetal presentation, birth method, and family history.
- Clinical details: assessment of hip abduction and hip reducibility and stability, other musculoskeletal abnormalities such as torticollis or clubfoot, and presence or absence of a hip click noted by PCP or examining orthopedist, were recorded.
- Generalized logistic regression model tested the association of DDH at initial ultrasound visit and DDH risk factors.

RESULTS

- 1,302 hips met inclusion criteria.
- Clinical instability was the best predictor that hip dysplasia would be found on initial diagnostic ultrasound.
- Breech presentation and family history weakly but not significantly, increased risk.
- With an odds ratio (OR) = 1, the physical finding of hip click did not increase the odds that the patient had hip dysplasia on initial ultrasound.
- Though the specificity of hip click was not as high as the Ortolani and Barlow tests, its sensitivity was the same.
- Of hips with DDH on ultrasound, 12.9% (77/597) had hip click as the only risk factor.
- 15.3% of patients referred for hip click had clinical instability when examined by the orthopedic hip specialist.

CONCLUSIONS

- Clinical instability is the best predictor of the risk factors evaluated that hip dysplasia will be found on initial diagnostic ultrasound.
- Breech presentation and family history weakly but not significantly, increased risk. This finding is important as these factors, along with clinical instability, were felt to be the risk factors with the best (though only moderate) evidence in the 2015 AAOS CPG.
- With an OR = 1 and a PPV of 41%, hip click is a sensitive but not specific risk factor.
- However, as hip click is the only risk factor in 13% of DDH cases found, and is conflated with clinical instability 15% of the time, hip click should remain a concerning physical finding for referring primary care physicians.

BIBLIOGRAPHY


DISCLOSURES

No disclosures to present.