**The Role of Ultrasound in Screening for Developmental Dysplasia of the Hip**

**Laurie Campfield, PGY-2**

**10/2011**

There is no question that accurate diagnosis of developmental dysplasia of the hip is paramount. Missed diagnoses and missed interventions can lead to devastating outcomes in an otherwise largely preventable clinical situation. Appropriate diagnostic screening for DDH has proven difficult to study, possibly in part due to the fact that the prevalence of DDH is not high. There is also no confirmatory gold standard diagnostic test for DDH. Clinical exams and ultrasound screening are widely accepted via the guidelines put forth by the AAP; however, solid evidence is lacking. A lack of agreement upon the natural progression of DDH (i.e. need for intervention vs. capability to spontaneously resolve), coupled with the large degree of operator dependence during both clinical and ultrasonographic exam also lead to confliction.

For these reasons an extensive review of the literature was conducted to determine if in newborn infants, does ultrasound screening with clinical exam vs. clinical exam alone improve outcomes? PubMed, PubMed Clinical Queries, the Cochrane Library, and the TRIP database were searched using the keywords “developmental hip dysplasia”, “ultrasound”, “screening”, and “infants”. This search yielded 5 studies that were subsequently critically appraised: one randomized controlled trial, two prospective cohorts, and two systematic reviews (one being a Cochrane Review). The clinical bottom line from the critical appraisal is that while sensitive, clinical exam when used alone has low specificity, and thus ultrasound screening may be needed as an adjunct diagnostic tool. Also, ultrasound does seem to detect more infants with DDH than clinical exam alone, and ultrasound may help to avoid unnecessary splinting/harnessing in infants. However, the net benefits of ultrasound screening are not clear, and there is insufficient evidence to give clear evidence-based recommendations for practice. Therefore, until further research can be designed to measure functional outcomes in a standardized fashion; the AAP Guidelines remain the current best source for our clinical practice.

**Literature Reviewed:**

* Dogruel, et al. Clinical examination versus ultrasonography in detecting developmental dysplasia of the hip. International Orthopedics 2008, 32:415-419.
* Elbourne, et al. Ultrasonography in the diagnosis and management of developmental hip dysplasia (UK Hip Trial): clinical and economic results of a multicentre randomised controlled trial. The Lancet 2002, 360:2009-2017.
* Goldberg, Michael. Early detection of developmental hip dysplasia: synopsis of the AAP clinical guidelines. Pediatrics in Review 2001;22;131.
* Roovers, et al. Effectiveness of ultrasound screening for developmental dysplasia of the hip. Arch Dis Child Fetal Neonatal Ed 2005; 90:F25-F30.
* Shipman, et al. Screening for developmental dysplasia of the hip: a systematic literature review for the USPSTF. Pediatrics 2006; 117;e557.
* Shorter, et al. Screening programmes for developmental dysplasia of the hip in newborn infants (Review). The Cochrane Collaboration 2011. Issue 9.
* USPSTF. Screening for developmental dysplasia of the hip: recommendation statement. Pediatrics 2006; 117;898.