Suggestion for new pubofemoral distance cut-off value for instability in lateral position during DDH screening

38.

Hans-Christen Husum, Michel Hellfritzsch, Nina Hardgrib, Bjarne Møller-Madsen, Ole Rahbek

Department of Orthopedics, Aalborg University Hospital;
Department of Radiology, Aarhus University Hospital; Department of Pediatrics, Aarhus University Hospital; Department of Children's Orthopedics, Aarhus University Hospital

Background: The current screening program for DDH in Denmark is insufficient in detecting all children with DDH. The Pubofemoral distance (PFD) has been proposed as a new, simple and inexpensive screening tool which could pave the way for a new cost-effective universal screening program for DDH in Denmark,
Purpose / Aim of Study: to validate pubo-femoral distance (PFD) as an indicator for instability of the hip in lateral position in Danish newborns screened for developmental dysplasia of the hip (DDH).
Materials and Methods: All participants had undergone ultrasonographic diagnostics using the modified Graf technique. In addi-tion, PFD measurements in lateral position were performed. Results were compared between 25 infants who had been treated for DDH because of dysplastic appearance on ultrasound combined with instability and a control group consisting of 100 untreated infants screened for DDH. Sensitivity, specificity and cut-off points were determined using Receiver operating characteristics (ROC) analysis
Findings / Results: We found a mean PFD of 6,83mm (6,2-7,4mm) in the treated group with the control group PFD of 3,44mm (3,3-3,6mm) ($p < 0,005$). A PFD value above a threshold of 4,4mm yielded a sensitivity of 100% and a speci-ficity of 93% for detecting instable DDH
Conclusions: PFD measured in lateral position was shown to be significantly increased in hips of children treated for DDH with Dennis Browne hip brace compared to healthy children with unaffected stable hips. Furthermore, the PFD measurement is characterized by a high level of sensitivity and specificity at a cut-off value of 4,4mm. A cut-off value of 6.00 mm has been previously reported as the gold standard in su-pine position. We suggest that 4.4 mm is used in lateral position.