

DOES THIS NEWBORN HAVE A DISLOCATED HIP? A SYSTEMATIC REVIEW AND DIAGNOSTIC TEST ACCURACY META-ANALYSIS

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To evaluate the diagnostic accuracy of clinical examination in identifying a dislocated hip in a newborn.

MEDLINE, Embase, CINAHL and Cochrane trial databases were systematically searched from inception until November 2023. The study population was babies under 3 months of age and the unit of analysis was the individual hip. The target condition was a decentred hip (Graf D,III,IV). The index test was the hip examination, which included Barlow/Ortolani manoeuvres, limited hip abduction (LHA) and clicking. The reference standard was ultrasound. Mixed effects models were fitted to estimate sensitivity, specificity and likelihood ratios. The QUADAS-2 tool assessed the risk of bias.

Ten studies reported data on 50,891 hips in 27,331 newborns, of which 811 hips were decentred. Nine studies (n= 43,809) evaluated a positive Barlow/Ortolani manoeuvre which had a sensitivity of 69% (CI 27-93%), specificity 98% (CI 92-99.6%), LR+ 35 (CI 11-108) and LR- 0.32 (CI 0.09-1.1). Four studies (n= 22,784) evaluated LHA which had a sensitivity of 10% (CI 2.6-32%), specificity of 97% (CI 91-99%), LR+ of 3.1 (CI 0.71-13) and LR- of 0.93 (CI 0.81-1.1). Two studies (n= 9,376) categorised LHA depending on whether it was unilateral (sensitivity 15-18%; specificity 98-99.5%; LR+ 9.5-36; LR- 0.83-0.87) or bilateral (sensitivity 1.9-16%; specificity 84-99%; LR+ 0.12-13; LR- 0.85-1.2). The presence of clicking was evaluated by two studies (n= 13,408) and had a sensitivity of 0.10-13%; specificity, 91.5-92.2%; LR+ range, 0.01-1.6 and LR- range, 0.95-1.1.

For every 1000 newborn hips screened, relying on the Barlow/Ortolani manoeuvres will identify 14 dislocations at the expense of 19 "unnecessary" scans and 6 missed diagnoses. A screening programme reliant on identifying LHA would identify 2 cases at the expense of 32 unnecessary scans and 18 missed diagnoses. The presence of clicking is unlikely to be helpful in the evaluation of newborn hips.

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