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How to avoid missing congenital dislocation of the hip

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The ideal screening method for congenital dislocation of the hip, for which the more global term is developmental dysplasia of the hip (DDH), continues to be controversial. For more than a decade, studies, editorials, and letters to the editor in medical journals have both advocated and opposed screening programmes for this disorder. Two recent studies have clearly demonstrated these conflicting opinions. The Medical Research Council Working Party on Congenital Dislocation of the Hip concluded that in the UK, a screening programme for the disorder, which has been in place since 1969, has been ineffective—that 70% of patients with DDH who underwent surgery were not diagnosed until after 3 months of age and the proportion of children who needed surgery (0.78 per 1000 live-births) did not decline after the screening programme was instituted.¹ Conversely, in today's *Lancet* Annabelle Chan and colleagues conclude that in South Australia the screening programme was very effective, with surgery being required for only 0.46 per 1000 livebirths during the 5 years of the study.

To create an effective screening programme, a clear definition of DDH and a standardised treatment regimen are needed.² The range of DDH—a dysplastic acetabulum, subluxable hip, subluxated hip, dislocatable hip, and dislocated hip—precludes uniform diagnosis and treatment. Various institutions and countries have advocated hip sonography on all newborn children as a screening method for DDH. This view is controversial with respect to both cost-effectiveness and accuracy of the technique for identifying hip disease. The use of ultrasonography as a screening method for all newborn babies or those at risk of DDH has also been debated because of the consequent over-treatment of children with physiological immaturity of the hip and the small but real risk of complications such as treatment-related osteonecrosis. This risk is reasonable if sonographic evidence of hip dysplasia in childhood correlates with risk of acetabular dysplasia in adulthood. In adults, acetabular dysplasia may be the cause of the arthritis in up to 30% of patients requiring total hip arthroplasty. Although Graf and others have attempted to define acetabular dysplasia by sonographic methods, the natural history of this abnormality in infancy is unknown.³ Unravelling of the natural history requires a multicentre study on the long-term effect of treatment of sonographic acetabular dysplasia in infancy compared with no treatment.

The need for an effective method for the early diagnosis of DDH (ie, in the first few months of life) is clearly evident to clinicians who treat children diagnosed late. In most cases, early diagnosis prevents the need for

major surgery. If the diagnosis is delayed beyond age 6 months, most children will require surgery. The surgery may include arthrography, closed reduction, placement in a hip spica cast, soft-tissue release, open reduction of the hip, femoral osteotomy, and acetabular osteotomy. To find out the effectiveness of a screening programme, type of surgery must be taken into account.

The basic issue in this controversy, however, is not whether children should be screened for DDH but what is the most clinically effective, cost-effective, and safe method for establishing an early diagnosis. Medical systems around the world will address this issue in different ways. The Medical Research Council study, when compared with the South Australian experience, demonstrated that not all screening programmes are created equal. A learning curve is required for the clinical and sonographic examination of the newborn child. In the USA, where there are about 3.8 million births per year, with 2% occurring out of hospital and perinatal care being given by many different providers, ranging from paediatricians to family doctors, primary-care physicians, nurse practitioners, physicians' assistants, and holistic doctors, no uniform screening programme is practicable. The common denominator that is needed is for training programmes to standardise examination of the infant for everybody who treats newborn babies. This training can be provided to those delivering care irrespective of setting or location.

Standardisation of the clinical examination, along with the judicious use of sonography, is the only way to decrease the incidence of (not eliminate) missed DDH. If sonographic evidence of hip dysplasia in infancy proves to have significant predictive value for adult hip dysplasia, then the issue of a universal sonographic screening programme should be revisited even if such a programme means that some children who may not need treatment receive it. Whether a formal screening programme is practicable or needed has yet to be proven. What has been shown is that the diagnosis must be made early and that each institution, country, or paediatric society must evaluate their method of assessment of babies' hips.

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- 2 Bennet, G. Screening for congenital dislocation of the hip. *J Bone Joint Surg (Br)* 1992; 74: 643–44
- 3 Graf R. Fundamentals of sonographic diagnosis of infant hip dysplasia. *J Pediatr Orthop* 1984; 4: 735–40.

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