DEVELOPMENTAL DYSPLASIA OF THE HIP SCREENING

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ABSTRACT

Background: Developmental dysplasia of the hip (DDH) is one of the most common orthopaedic disorders in newborns and is a major cause of long-term morbidity and disability if not treated appropriately. Early detection and treatment of DDH is associated with easier treatment and better long-term outcomes. Therefore, ultrasound screening has been suggested in the first weeks of life, accompanying physical examination, either universally or for those with certain risk factors. This could be associated with overdiagnosis and overtreatment, given the high rate of spontaneous resolution. In Navarra, DDH screening is performed in all girls in the first weeks of life and in boys with risk factors.

Objective: The objective was to analyse and synthesise the evidence on the efficacy, safety and cost of screening for DDH in newborns, considering screening by physical examination and hip ultrasound, both universal (in all newborns) and restricted to certain groups with risk factors (selective).

Methods: a Health Technology Assessment report by the IACS published in 2016 was used as a starting point. The selection criteria and results obtained up to the date of the search were assumed, and new searches were performed to update the available evidence. Systematic reviews that addressed the effectiveness of DDH screening were defined as inclusion criteria. The search was expanded to include comparative observational studies. We also included full economic evaluations, i.e. those evaluating at least two alternatives, measuring both costs and effects resulting from their implementation.

Key points:

- Most reviews and meta-analyses comparing different DDH screening strategies suffer from important limitations, as they are not based on comparative studies between different screening strategies. This is considered an inadequate methodology, as it does not ensure or adjust in any way for comparability of groups and there are numerous causes for variability.

- Regarding comparative studies, the two clinical trials comparing different screening alternatives did not reach statistically significant differences, although the required sample size was probably underestimated to show a benefit of universal screening. Observational studies comparing universal screening versus another alternative found benefits in terms of late diagnosis, surgical treatment or hospital admissions for DDH. Two studies show an increase in harness treatments with universal screening, while another shows a reduction. There is no evidence in any study that universal screening increases adverse effects.

- Eight studies were found that provide information on economic evaluation. Only two of them perform an analysis with a clearly defined model for economic evaluation, all of them use a health system perspective and none of them take into account long-term costs or health outcomes. Most of the studies are cost-effectiveness studies and only one is a cost-utility study. Two studies consider universal ultrasound screening as a dominant alternative (more effective and less costly) and the other cost-effectiveness studies estimate an ICER of between $17.6 and €497,828 per additional favourable outcome. The only cost-utility study concludes that universal ultrasound screening averts more DALYs overall, but requires a higher economic cost per DALY averted (8371.4 PPP$/DALY). At the willingness-to-pay thresholds typically applied in high-income countries, both universal and selective ultrasound screening are cost-effective options for screening for DDH. The two cost-effectiveness studies analysing this conclude that a semi-universal screening strategy (of all girls and boys with risk factors) may be the most cost-effective approach.

- There is no consensus in the recommendations issued by scientific societies or expert groups. Those of US origin favour selective ultrasound screening, while others at European or international level recommend universal ultrasound screening.

- The availability of resources and infrastructure, treatment capacity, health system values and social factors are other issues to take into account when determining which screening protocol may be the most appropriate in each case.

Recommendations:

It is agreed to continue the screening strategy currently implemented in the SNS-O: universal ultrasound screening in girls and selective screening in boys.