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Review article

Congenital dislocation of the hip: Optimal screening strategies in 2014



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ABSTRACT

A prospective multi-centre nationwide study of patients with congenital dislocation of the hip (CDH) diagnosed after 3 months of age was conducted with support from the French Society for Paediatric Orthopaedics (*Société Française d'Orthopédie Pédiatrique* [SoFOP]), French Organisation for Outpatient Paediatrics (*Association Française de Pédiatrie Ambulatoire* [AFPA]), and French-Speaking Society for Paediatric and Pre-Natal Imaging (*Société Francophone d'Imagerie Pédiatrique et Prénatale* [SFIPP]). The results showed inadequacies in clinical screening for CDH that were patent when assessed quantitatively and probably also present qualitatively. These findings indicate a need for a communication and educational campaign aimed at highlighting good clinical practice guidelines in the field of CDH screening. The usefulness of routine ultrasound screening has not been established. The findings from this study have been used by the authors and French National Health Authority (*Haute Autorité de Santé* [HAS]) to develop recommendations about CDH screening. There is an urgent need for a prospective randomised multi-centre nationwide study, which should involve primary-care physicians.

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In 2011, the French Society for Paediatric Orthopaedics (*Société Française d'Orthopédie Pédiatrique* [SoFOP]) reported the results of a prospective multi-centre study of patients with congenital dislocation of the hip (CDH) diagnosed after 1 year of age [1]. To further refine the analysis, another prospective multi-centre nationwide study was conducted in patients with CDH diagnosed after 3 months of age, with support not only from the SoFOP but also from community-based paediatricians (French Organisation for Outpatient Paediatrics, *Association Française de Pédiatrie Ambulatoire* [AFPA]) and from radiologists (French-Speaking Society for Paediatric and Pre-Natal Imaging, *Société Francophone d'Imagerie*

Pédiatrique et Prénatale [SFIPP]). The results reported in this article were used by the authors and French National Health Authority (*Haute Autorité de Santé* [HAS]) to develop recommendations about CDH screening.

The objective of this article is to report the findings from the various surveys reported at the latest SoFOP symposium (14 November 2013) and to provide an overview of the HAS recommendations, which have been available online at <http://www.has-sante.fr/> since early 2014.

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² We are grateful to the SoFOP members working in French institutions for their massive participation, which ensured the collection of comprehensive data for this study. We thank the SoFOP members in Belgium and Switzerland who responded

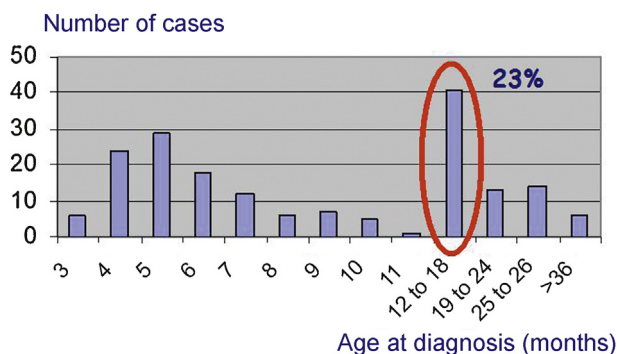


Fig. 1. Number of cases of congenital dislocation of the hip diagnosed according to age.

1. Distinctive features of congenital dislocation of the hip diagnosed after 3 months of age^{1,2}

1.1. Introduction

The objective of this study was to determine whether a population of patients with congenital dislocation of the hip (CDH) diagnosed late, after 3 months of age, exhibited distinctive features compared to the general population and to patients included in an earlier study of CDH diagnosed after 1 year of age [1].

1.2. Material and methods

A prospective study was conducted among SoFOP members to identify patients with CDH diagnosed after 3 months of age, between May 2012 and April 2013, and requiring admission for closed or surgical reduction.

1.3. Results

The study involved 35 centres, which included 182 patients (208 dislocated hips), 20 boys and 162 girls (male/female ratio: 0.11). The dislocation was bilateral in 26 (14%) patients. The right hip was involved in 105 (50.5%) cases and the left hip in 103 (49.5%) cases. Mean age at diagnosis was 12.7 months (range: 3–78 months) with a frequency peak between 12 and 18 months, i.e., during walking acquisition (Fig. 1). The incidence of CDH diagnosed after 3 months of age among patients born in 2012 was 0.1/1000. For 44 (24.2%) hips, the assessment identified a risk factor for CDH (breech presentation, CDH in a first-degree relative, or other postural orthopaedic abnormality such as genu recurvatum or congenital torticollis).

Ultrasonography of the hips had been performed in 23 (13%) patients, at 1 month ($n=19$), 2 months ($n=3$), or 4 months ($n=1$) of age. A radiograph had been obtained for 138 (76%) patients, including 72 who had this investigation performed between 4 and 6 months of age. The treatment consisted in closed reduction for 136 (75%) hips and/or surgical reduction for 102 (56%) hips. Mean hospital stay length per patient was 19 days (range: 1–75 days), with a total of 3575 hospital days, indicating a cost of about 3.5 million Euros.

1.4. Discussion

Compared to the data from the earlier study conducted in 2011, we found no differences regarding the sex ratio, CDH characteristics

¹ to this survey; their data were not included in this national study but were similar to those collected in France.

(side and frequency of bilateral involvement), proportion of diagnoses established after 1 year of age, or risk factor prevalence [1]. These results suggest that the same causes produce the same effects, with uncorrected gaps in screening generating a similar number of missed diagnoses in closely similar populations of infants. Our study highlights inadequacies in CDH screening, which are clearly illustrated in Fig. 1 by the peak age at diagnosis of 12–18 months. Although CDH is usually clinically obvious at this age, the diagnosis was established only when the parents asked their physician for advice after noticing a limp when their child started to walk.

The quality of screening procedures can be evaluated based on their effectiveness. Local strategies designed to eradicate CDH have been implemented, for instance in Rennes, France [2], and Coventry, UK [3], with remarkable effectiveness. Nevertheless, the results obtained by following good clinical practice guidelines in individual institutions do not predict nationwide results [4].

We are aware of only two prospective randomised trials, both done in Norway. One of these trials, in which clinical screening was performed routinely, found no significant difference between routine ultrasound screening and ultrasound screening reserved for those patients with risk factors for CDH [5]. The other trial, which also involved routine clinical screening, compared routine, risk factor-based, and no ultrasound screening [6]. No significant differences were noted across these three strategies. Overall, these findings fail to support the usefulness of ultrasound screening performed routinely or in patients with risk factors. Thus, the physical examination seems to be the reference standard for the diagnosis of CDH, provided it is performed by an experienced evaluator. The best indication for ultrasonography may be inadequate quality of clinical screening [7], although this palliative strategy is open to criticism and less than ideal. Ultrasonography in patients with clinical hip instability decreased treatment requirements in a study by Elbourne et al. [8]. On the other hand, ultrasound screening was associated with increased use of treatments, numbers of physician visits, and serial ultrasonography in a study by Rosendahl et al. [6].

The cost of CDH screening and of treatments given based on screening results is extremely difficult to assess, given the considerable heterogeneity in screening and quantification methods [9]. In the study by Elbourne et al. [8], the cost of screening and treatment was similar between clinical and ultrasound screening, although work time missed by the parents and long-term outcomes were not assessed.

1.5. Conclusions

This case-series study uncovered inadequacies in clinical CDH screening, which were obvious when assessed quantitatively and probably also involved poor clinical screening quality, although this last point was not proven. Thus, a communication and educational campaign drawing attention to good clinical practice in the field of CDH screening is required.

The usefulness of routine ultrasound screening has not been established. Ultrasonography may be indicated in patients with risk factors, although studies are needed to assess this possibility. Conflicting data on costs and treatments have been reported. These persisting uncertainties support the conduct of a prospective randomized multi-centre trial. Furthermore, we believe a crucial point is the involvement in future studies of primary-care physicians, who are playing an increasing role in the follow-up of infants in the first year of life.

² Survey led with the pediatricians AFPA (French Association of Ambulatory Pediatrics) by D. Proslie, A. Bocquet, P. Pacrot-Deffrenne, F. Life Wise, R. Assathiany and N. Gelbert.

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