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ORIGINAL ARTICLE

Developmental dysplasia of the hip in children with a psychomotor disorder. A risk factor for a poor outcome?☆

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KEYWORDS
Developmental dysplasia of the hip;
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Abstract
Introduction: Orthopaedic treatment of developmental dysplasia of the hip (DDH) has a high success rate in cases that are diagnosed early. However, the outcomes of these patients are not really known when they are subsequently diagnosed with some type of cerebral impairment.
Materials and methods: A retrospective observational study was conducted on cases of DDH with a poor outcome after orthopaedic treatment, being unknown if they had any type of psychomotor disorder. The patients were clinically and radiologically assessed, and afterwards received neurological valuation by the Child Neurology Unit.
Results: Of the 325 cases of DDH diagnosed in 293 patients, 10 patients (3%) with 16 hips with DDH were diagnosed of any cerebral impairment. All of them were initially treated orthopedically. Clinical and radiologically evolution was succesful only in 4 cases (25%) being necessary any surgical procedure in the remaining 12 cases. After surgical treatment we got an improvement in the Acetabular Index ($p = 0.005$) and Reimers Extrusion Index ($p = 0.042$). Neck-shaft angle and Wiberg CE angle also improved but this difference was not statically significant. Cerebral impairment was diagnosed at 2.5 years of age and the begining of walking was delayed at 2.4 years of age.
Conclusions: Cerebral impairment can lead to an unfavourable outcome in the treatment of DDH, with the relative risk of a poor outcome being 7.2 times higher in these patients.
An unfavourable outcome with conventional treatment of DDH must make us suspect the presence of some type of neurological disorder, particularly if there is a delay in walking.

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PALABRAS CLAVE
Displasia del desarrollo de la cadera;
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Displasia del desarrollo de la cadera en niños con trastorno psicomotor. ¿Factor de riesgo para un mal resultado?

Resumen
Introducción: El tratamiento ortopédico de la displasia del desarrollo de la cadera (DDC) presenta un alto porcentaje de éxito en casos diagnosticados precozmente o en los primeros meses de vida. Sin embargo, se desconoce qué resultados presentan estos pacientes cuando posteriormente son diagnosticados de un trastorno psicomotor.
Material y métodos: Se realiza un estudio observacional retrospectivo de los casos de DDC con mala evolución tras tratamiento ortopédico, desconociéndose si presentaban algún tipo de trastorno psicomotor. Los pacientes fueron valorados clínica y radiológicamente, y por la Unidad de Neurología Infantil.
Resultados: De los 325 casos de DDC diagnosticados en 293 pacientes, 10 pacientes (3%) con 16 caderas con DDC fueron diagnosticados de algún tipo de trastorno psicomotor. Todos los casos inicialmente fueron tratados ortopédicamente. La evolución tanto clínica como radiológica en estos casos fue favorable sOlo en 4 (25%). En los 12 restantes se indicó quirúrgica para su resolución (75%). Hubo mejoría tras tratamiento quirúrgico en el índice acetabular (p = 0,005) y en el índice de extrusión de Reimers (p = 0,042). El ángulo cÉrvico-diafisario y el ángulo CE de Wiberg también mejoraron, pero su diferencia no fue estadísticamente significativa. El diagnóstico del trastorno psicomotor se realizó a los 2,5 años de edad. El inicio de la deambulación de estos pacientes estaba retrasado, iniciándose a los 2,4 años.
Conclusiones: El trastorno psicomotor puede condicionar una tórpida evolución en el tratamiento conservador de la DDC; el riesgo relativo de presentar un mal resultado es 7.2 veces mayor en estos pacientes.
Ante una mala respuesta al tratamiento convencional de una DDC, debe sospecharse la existencia de un posible trastorno neurológico de base, especialmente si hay un retraso en la deambulación.

Introduction

The treatment of developmental dysplasia of the hip (DDH) has been highly standardised for many years, but its failure can lead to the development of major sequelae. At present, the routine performance of neonatal examinations combined with the knowledge of risk factors and the use of ultrasonography allow its early diagnosis, which is crucial for the early initiation of treatment in order to achieve the best possible outcomes. Outcomes are satisfactory in a high percentage of patients (between 80% and 92% of cases) irrespective of the method chosen for its treatment (Pavlik harness, abduction brace, etc.), and depending on the degree of hip stability.[1,2]

Avascular necrosis is possibly a complication that develops most frequently during treatment of hip dysplasia, although its incidence has decreased significantly (2.38% of cases treated with conservative approaches).[2] The developed complications are usually related to the type of treatment used or the difficulty of hip stabilisation. Many studies in the literature have found factors that influence the prognosis of conservative treatment and the development of complications, such as delayed diagnosis, bilaterality, hip luxation versus preluxation, teratologic dislocations, adduction contracture of the hip or the initial position of the femoral head.[3–7] However, few studies in the literature have analysed the impact of comorbidities such as psychomotor delays, behavioural disorders or cerebral palsy on DDH.

The aim of this study was to analyse the cases of DDH that did not respond well to conservative treatment and the possible influence of psychomotor disorders, which could be risk factors contributing to these poor outcomes. To do so, we conducted a retrospective study of patients that received a diagnosis of psychomotor disorder when treatment for DDH had already started.

Materials and methods

We conducted a retrospective observational study of the cases of DDH treated in our hospital between January 2002 and December 2012 (325 cases of DDH in 293 patients). Orthopaedic treatment failed in 44 of the cases under study (13.5%), with failure defined as not achieving concentric reduction of the hip or the persistence of a residual hip dysplasia with an acetabular index (AI) greater than 30° that did not resolve after the patient began walking. Psychomotor delays were detected in 10 of these patients (16 hips), months after treatment of DDH had been initiated.