Children's orthopaedics

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Prolonged brace treatment does not result in improved acetabular indices in infantile dislocated hips

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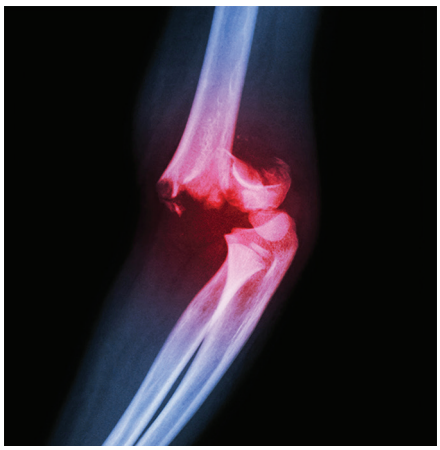
Developmental dysplasia of the hip is a common hip disorder, but disease severity ranges considerably, from mild under-coverage of the head to a completely dislocated hip. If a dislocated hip is reducible, a Pavlik harness is extremely effective and is the go-to treatment in most countries, which is backed up by credible literature. Once reduced, the feeling is that the femoral head and acetabulum grow together, becoming increasingly congruent. However, despite consensus on its effectiveness, there is no true agreement about treatment regimens or treatment length in the Pavlik harness, and indeed how far to follow these patients up. This article from **San Diego (California, USA)** and **Toronto (Canada)** examined the difference in practice between the two large North American institutions on the length of Pavlik harness treatment.[1] Specifically, the authors aimed to evaluate the effect on acetabular index (AI) of prescribed time in brace at age two years. All patients were then prospectively enrolled in a database at one of the two study institutes. This was retrospectively studied, with patients treated with a Pavlik harness and had a recorded acetabular index at two-year follow-up included in the study. The first institution had a protocol whereby the Pavlik harness was used until normal radiological acetabular development was observed, whereas the second institution followed a structured protocol of a shorter brace duration of treatment. Hip dislocation was defined as an ultrasound finding of < 30% femoral head coverage at rest or an International Hip Dysplasia Institute severity grade III or IV on the pre-treatment radiograph. Overall, 53 hips met the inclusion criteria. Those treated at institution one had a brace duration three times longer than hips from institution two at a mean of 8.9 versus 2.6 months. The success rate of achieving a reduced hip was similar between



the institutions at 88% and 85%, respectively. There were no differences in AI at two-year follow-up between the institutions within adjusted mean of 25.6° and 23.5°, respectively. There was a tendency towards dysplasia, with 19% of patients from institution one below the 50th centile of age- and sex-matched AI normal values, compared with 44% from institution two. In terms of those patients with more than two standard deviations from the mean - and therefore formally having dysplasia - this constituted 27% of hips from institution one and 22% from institution two. No relationship was identified between age of initiation of bracing in the cohorts and the final measured AI. The study demonstrated that once a reduction is achieved, a shorter course of Pavlik harnessing of 12 weeks is adequate compared with treatment of longer duration, supporting the findings of previous literature. This is an honest insight from two large and excellent centres, highlighting the variation in practice and the lack of robust evidence supporting it.

Hip morphology in periacetabular osteotomy patients

As noted in the previous paper in this section of *BJ360*, developmental dysplasia of the hip (DDH) represents a large spectrum of hip pathology. It is also unclear if infantile DDH and acetabular dysplasia at skeletal maturity are pathologies with two different aetiologies, or if they are two processes along the same disease spectrum with hip dysplasia diagnosed in adolescents and the late presentation of earlier mild dysplasia diagnosed in adults. As imaging techniques and operative techniques have improved, there is greater scope for intervention, and surgeons are expanding indications. What is not known in the longer term is what effect these interventions have on hip morphology. This study from **New York (New York, USA)** examined the hip morphology of patients treated with periacetabular osteotomies seen in late acetabular dysplasia of skeletal maturity, compared with the hip morphology in patients previously treated for infantile DDH.[2] The authors hypothesized that common morphological features would be identified due to a common aetiology. Patients undergoing a periacetabular osteotomy (PAO) over a ten-year period under the care of a single surgeon were studied retrospectively. All patients previously treated for infantile DDH were included, while those who had prior bony surgery were excluded. Radiological measurements were recorded by the study team, and for comparison a control case series was established of patients undergoing a PAO, but without a history of DDH diagnoses or treatment. The control group was matched on a 2:1 basis on centre-edge angle, age, and sex. Overall, 21 hips in 18 patients who had previously been treated for infantile DDH were included, of whom the majority had undergone treatment in Pavlik harness. The control group comprised 42 hips in 42 patients who had not previously had any treatment for DDH. There was no difference in radiological parameters measured between those treated for DDH and those not, including femoral version, anteversion measurements, neck-shaft angle, lateral centre-edge angle, and alpha angle. Femoral and acetabular morphology is therefore similar for patients with late-presenting acetabular dysplasia compared to patients with DDH treated as infants. It is possible that DDH was missed in some of the group undergoing PAO at maturity due to selective screening in the USA, and that we are looking at two groups with a similar aetiology. However, further conclusions cannot be drawn from this data, and it seems that for now at least, things look to be morphologically similar between these two groups.