Correlation of acetabular chondrocyte apoptosis with caspase-3 and Bcl-2 expression in developmental dislocations of the hip

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ABSTRACT. This study aimed to determine whether abnormal apoptosis is present in acetabular cartilage in early developmental dislocations of the hip (DDH), and if so, whether it is correlated with the expression of caspase-3 and Bcl-2. DDH was induced in 24 4-week-old New Zealand white rabbits. Acetabular cartilage specimens from the experimental and control groups were stained with hematoxylin and eosin (H&E). Animals from the experimental group developed acetabular dysplasia.
Apoptotic chondrocytes were observed by ultrastructural electron microscopy and H&E. TUNEL assays revealed significantly greater acetabular chondrocyte apoptosis in the treated samples as compared to the control. Significantly higher caspase-3 expression and lower Bcl-2 expression were also measured in the DDH group compared with the control. We conclude that excessive apoptosis does occur in acetabular cartilage with DDH, and is positively correlated with high caspase-3 expression as well as low Bcl-2 expression.

Key words: Caspase-3; Bcl-2; Hip dislocation; Chondrocytes; Apoptosis