

P024 The association of aggrecan polymorphism in degeneration of intervertebral disc

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Aggrecan, a large aggregating proteoglycan, is one of the major structural components of intervertebral disc. Aggrecan provides intervertebral discs with the ability to resist compressive loads. This function is related to the structure of aggrecan and in particular to the large number of chondroitin sulphate chains present on its core protein. The chondroitin sulphate chains are present in two adjacent regions of the aggrecan core protein, termed the CS1 and CS2 domains. In the human, the region of the aggrecan gene encoding the CS1 domain exhibits size polymorphism, which can result in variation in the degree of chondroitin sulphate substitution of aggrecan in different individuals. This raises the possibility that the functional properties of aggrecan may vary between individuals, and that those individuals with an inferior aggrecan structure may be more susceptible to premature intervertebral disc degeneration. The results from this study have shown that the number of individuals with the longer CS1 domain was found with intervertebral disc degeneration: allele 27 (28.26%), 28 (15.21%). It was also found that the number of individuals in the normal group have a shorter CS1 domain when compared to patients with intervertebral disc degeneration: allele 18 (2.5%), 21 (12.5%). It is thus concluded that there is no correlation between length of CS1 domain and the risk of disc degeneration.