



Interleukin-10 promoter polymorphisms associated with susceptibility to lumbar disc degeneration in a Chinese cohort

W.P. Lin, J.H. Lin, X.W. Chen, C.Y. Wu, L.Q. Zhang,
Z.D. Huang and J.M. Lai

Department of Orthopedics, The First Affiliated Hospital,
Fujian Medical University, Fuzhou, Fujian, P.R. China

Corresponding author: J.H. Lin
E-mail: jianhua0918@126.com

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ABSTRACT. We investigated a possible association between interleukin (IL)-10 single nucleotide polymorphisms (SNPs) and susceptibility to and severity of lumbar disc degeneration (LDD) in a Chinese cohort of 320 patients with LDD and 269 gender- and age-matched controls. The degree of disc degeneration was determined by magnetic resonance imaging using Schneiderman's classification. Genetic analysis of IL-10 promoter polymorphisms (at -1082 A/G, -819 T/C, and -592 A/C) was carried out by PCR-RFLP. A total of 134 herniated lumbar intervertebral discs were collected during surgery for IL-10 mRNA detection. For SNPs at -592, the A allele and AA genotype frequencies were significantly higher in LDD patients than in controls. Similarly, the AA genotype and A allele frequencies at -1082 were significantly higher in cases than in controls. Among the LDD subjects, carriers of AA at -592 and GG at -1082 had significantly lower mean IL-10 mRNA expression than the other two genotypes. The SNPs at each locus were not significantly associated with severity grade in the LDD patients. Logistic regression analyses showed that the AA at -1082, AA at -592, and IL-10 mRNA expression level were independent risk factors for

LDD. We conclude that the IL-10 SNPs at -1082 A/G and -592 A/C as well as IL-10 mRNA in the herniated lumbar intervertebral discs are associated with susceptibility to LDD in this Chinese cohort, but not with disease severity.

Key words: Lumbar disc degeneration; Polymorphisms; Interleukin-10; Susceptibility