

HYPERTENSION IS INDEPENDENTLY ASSOCIATED WITH LUMBAR DISC DEGENERATION: A LARGE-SCALE POPULATION-BASED STUDY

Samartzis D,¹ Bow C,¹ Karppinen J,² Luk KDK,¹ Cheung BMY,³ Cheung KMC¹

¹Department of Orthopaedics and Traumatology, The University of Hong Kong, Hong Kong

²Institute of Clinical Medicine, University of Oulu, Oulu, Finland

³Department of Medicine, The University of Hong Kong, Hong Kong

INTRODUCTION: Hypertension, as elevated systolic blood pressure (SBP) and / or diastolic blood pressure (DBP), is a factor related to cardiovascular disease; however, its role in development of disc degeneration remains speculative. Hence, this large-scale population-based study addressed the association of blood pressure with lumbar disc degeneration.

METHODS: This was a cross-sectional study of Hong Kong Disc Degeneration-Cardiovascular Cohort. At the time of analyses, there were 1261 subjects (63.4% females; mean age, 52.4 years) whose blood chemistry, anthropomorphic and lifestyle / environmental factors were assessed. The SBP and DBP were measured on 3 occasions. Hypertension was defined as SBP of ≥ 140 mm Hg and / or DBP of ≥ 90 mm Hg. T2-weighted magnetic resonance imaging (MRI) of the lumbar spine was performed. Disc degeneration severity and other MRI phenotypes were assessed.

RESULTS: Hypertension was noted in 35.5% of those with moderate / severe disc degeneration compared with 24.5% with less severe degenerative profiles ($p < 0.001$). Based on multivariate regression model, hypertension was significantly related to moderate / severe disc degeneration (adjusted odds ratio, 1.51; 95% confidence interval, 1.05-2.17; $p = 0.027$).

CONCLUSIONS: Based on one of the largest population-based studies, this study illustrated, for the first time, that elevated blood pressure was independently associated with different stages of lumbar disc degeneration on MRI. Hypertension increased the likelihood of moderate / severe disc degeneration, a phenotype highly associated with LBP, by 50%. This study raises further awareness of potential role of vascular disease in a predictive risk profile model of lumbar disc degeneration.