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Therapeutic Effects of Baicalin on Degeneration of Intervertebral Disk Cartilage Endplate Cells by Inhibiting IL-1β Activation via the NF-κB Pathway

Yukun Zhang[1], Huihua Zhai[2], Jun Ren[3] and Weibin Sheng[1,*]

[1]Department of Spine Surgery, The First Affiliated Hospital of Xinjiang Medical University, Urumqi 830054, Xinjiang Uygur Autonomous Region, China
[2]Department of Anesthesia, Xinjiang Production and Construction Corps Hospital, Urumqi 830002, Xinjiang Uygur Autonomous Region, China
[3]Department of Spine Surgery, The Six Affiliated Hospital of Xinjiang Medical University, Urumqi 830002, Xinjiang Uygur Autonomous Region, China

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ABSTRACT We aimed at the assessment of efficacy of baicalin (BAI) on the degeneration of intervertebral disc (IVD) cartilage endplate-derived stem cells (CESCs). CESCs fell into control, IL-1β and BAI groups. MTT assay and EdU staining were employed for proliferation examination, and Annexin V-FITC/PI staining for apoptosis monitoring. The mRNA expressions of IL-6, aggrecan (Acan) and type II and X collagens were measured using RT-qPCR, and the protein expressions of type II collagen, Acan and matrix metalloproteinase (MMP)-3 were measured using immunofluorescence (IF) staining. Compared with IL-1β group, 12.5, 25 and 50 μg·mL-1 BAI groups had weakened apoptosis ability, decreased mRNA levels of IL-6 and type X collagen, reduced protein levels of NF-κB p65, MMP-1, MMP-3 and MMP-13, and increased mRNA levels of type II collagen and Acan in dose-dependent manners ($P<0.05$). Through regulating the NF-κB pathway, BAI inhibits the apoptosis of CESCs and the degradation of extracellular matrix induced by IL-1β, and reduces the cellular inflammatory level, thereby alleviating degradation.