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Anti- inflammatory mechanism of melittin, a component of bee venom in Raw 264.7 cells and Synoviocyte

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Bee Venom (BV) has been treated in inflammatory diseases such as rheumatoid arthritis (RA). Bee venom contains several biologically active non-peptide substances as well as two major known peptides; the hemolytic peptide melittin (50%) and the neurotoxic peptide apamin, and a number of minor peptides. Previous our study showed that BV blocked LPS and SNP-induced production of NO and PG through inactivation of NF-κB which regulates expression of COX-2 and iNOS. In this study, we investigated whether melittin, a major componet of BV may play a critical role in the anti-inflammatory effect of BV. We investigated effect of melittin on lipopolysaccharide (LPS) and sodium nitroprusside (SNP)-induced induction of COX-2, cPLA2 and iNOS expression, and production of NO and PGE2, and activation of NF-κB in a murine marcrophage cell line Raw 264.7 cell and synoviocytes. Similar to the effect of BV, melittin prevented LPS and SNP induced COX-2, cPLA2 and iNOS expression, and the production of NO and PGE2 through inhibition of transcriptional and DNA binding activation of NF-κB. The inhibitory effect of melittin in some paramters tested was less or extent compared to BV, but most of the inhibitory effects of melittin was comparable to the effect of BV, suggesting that melittin may be a causal effective componet of antiinflammatory effect of BV

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