The Effect of Bee Venom & Purified Bee Venom on Cell Death in Synovial Cell

Yun-Seop, Lee · Jung-Chul, Seo · Seung-Woo, Lee · Sang-Won, Han

Department of Acupuncture & Moxibustion, College of Oriental Medicine, Kyung-San University

Objective: This study is aimed to investigate the effects of bee venom and purified bee venom on cell death in synovial cell line.

Methods: It was evaluated by using MTT assay, morphological method, flow cytometry, immunocytochemistry analysis, RT-PCR.

Results: The result obtained is as follows.
1. The MTT assay demonstrated that synovial cell viability was significantly inhibited dose-dependently by treatment with BV and PBV in comparison with control. And the inhibitory effect of BV and PBV was almost same.
2. The morphologic study demonstrated that synovial cell showed apoptotic body resulted from apoptosis after treatment with BV and PBV for 6 hours using microscope.
3. The Flow cytometry demonstrated that apoptosis of synovial cell treated with BV and PBV was related with stop of cell cycle in stage of G0/G1.
4. Immunocytochemistry assay demonstrated that COX-II and iNOS were slightly expressed by treatment with BV and PBV in comparison with control group.
5. RT-PCR analysis demonstrated that COX-II were almost down-regulated by high dose treatment with BV and PBV in comparison with control group. iNOS were well down-regulated by treatment with 5 μg/ml BV and PBV whereas it was well expressed in control group.

Conclusion: These results suggest that bee venom and purified bee venom have significant effect on cell death in synovial cell line and further study is needed in vivo.

Key words: Bee Venom, Purified Bee Venom, Synovial Cell Line, Cell Death

I. 서론

류머티스関節炎은 주로 滑液性関節의滑液膜 비후와 염과구의 침음현상을 특징으로 하는 自家免疫疾患의典型으로 慢性炎症性疾患이다. 이는 韓醫學의으로 患風(2-6), 鵝熱風(2,3), 白虎患風(2,4), 痛風(2,5-6), 痈症(2,5,7,9), 風痹(10)의 범주에 속한다고 볼 수 있으며 초진은 風寒濕邪의 侵入하거나(11-5,7-9,11) 汗出後當風(4,12-13), 飲酒後當風(3,4,13), 風濕痰火(3,14,4,7-8) 등으로 인하여 발생하며 治法으로는 祛風. 散寒. 除濕. 化痰. 益氣. 活血. 通絡. 填補肝氣 doen 등으로 생각된다.

발달된 의료기술로 수많은 질병들이 정복되어 가고 있는 현실 속에서 自家免疫異常으로 인한 疾患들은 아직도 정복되지 않은 病治으로 류머티스関節炎도 그 중 하나이다. 현재 이에 대한 많은 治療이 연구 중이며 藥療法도 그 중 하나의 治療法이라고 생각된다.

따라서 蜂毒을 이용한 藥療法은 新藥療法의 一部分으로 蜂毒은 농벌(Apis mellifera ligustica)의 毒囊에 들어있는 약 40여 가지의 유효성분으로 구성된 물질로 영증, 염증자 등을 유발하는 작용이 있으며 臨床에서는 療痛. 解熱. 消炎. 鎖瘡 및 免疫 增強 등의 效能이 있는 것으로 알려져 있다.