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The effect of enalapril on inflammation and IL-1 $\beta$  and IL-8 production in chronic arthritis

Nikbakht F., Najafipour H., Dabiri Sh.

### Abstract:

*Background and the purpose of the study:* Angiotensin II (Ang II) other than acting as a vasopressor hormone has pro-inflammatory properties. Since angiotensin-converting enzyme (ACE), is present in inflamed synovial membrane, in this study the effect of enalapril in modulation of inflammation and cytokine production in experimental induced chronic arthritis was investigated.

*Methods:* Chronic joint inflammation was induced by antigen-induced arthritis method in rabbits and enalapril was given orally (7.5mg/kg/day) two weeks before (prophylaxis group) or two weeks after (treatment group) induction. Serum of arthritis's ACE activity was measured by HPLC, pro-inflammatory cytokines, IL-1 $\beta$  & IL-8 were measured in synovial fluid, and histology of knee joints was assessed in both groups.

*Results:* Results revealed that enalapril reduced ACE activity in serum significantly ( $P=0.004$ ), had no effect on IL-8 of synovial fluid and reduced the IL-1 $\beta$  production ( $P<0.05$ ). Histological results revealed a significant reduction in villous hyperplasia and pannus formation ( $P<0.05$  in both groups). While in prophylaxis group no bone erosion was observed and the cartilage was either intact or slightly invaded by synoviocytes, in non-treated group the cartilage was mostly invaded.

*Conclusion:* Enalapril reduces production of pro-inflammatory cytokine IL-1 $\beta$  and severity of joint damage in chronic arthritis and may have therapeutic benefits in inflammatory joint diseases

### Keywords:

Enalapril . Chronic arthritis

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