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# Curcumin-pyrazole prevents sepsis-induced acute kidney injury via inhibition of NF-κB pathway in a Rat Sepsis Model

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**Objectives:** Sepsis is the main cause for acute kidney injury which results in high mortality and morbidity. It is a potentially life-threatening inflammation caused by severe infection which leads to activation of NF-κB and transcription of several pro-inflammatory genes, including TNF-α, IL-6, and IL-1β. Therefore, the present study was aimed to define the protective effect of novel curcumin-pyrazole (CP) on the renal inflammation during sepsis in rats.

**Methods:** A septic rat model was established by cecal ligation and puncture (CLP) and a diverse dose of pyrazole was administered to rats. The rats were evaluated for survival, tissue pathology, IL-1β, IL-6, TNF-α, lipoxygenase-5 in plasma. The expression of TLR4, IκB, IKK, NF-κB p65 in kidney tissue was determined using western blot technique.

**Results:** After CLP, the kidney inflammation was enhanced as shown by elevated plasma levels of IL-1β, IL-6 and TNF-α. Moreover, the NF-κB activity and TLR4 expression in rat kidney tissues were found to be increased after CLP. In the CP treated group, the tissue architecture was improved as shown by histopathological analysis. The expression of IL-1β, IL-6 and TNF-α, NF-κB activity and TLR4 expression in rat kidney tissues were found to be reduced significantly as compared to CLP.

**Conclusions:** The current study demonstrated the protective effect of curcumin-pyrazole on CLP-induced kidney injury via attenuating NF-κB pathway