Poster Abstracts

PO-33

TOLL-LIKE RECEPTOR 9 MEDIATES PARAQUAT-INDUCED ACUTE LUNG INJURY: AN IN VITRO AND IN VIVO STUDY

Haitao Shen[1],Na Wu[2],Min Zhao[1]

[1] *Emergency Department,Shengjing Hospital of China Medical University, China*

[2] *Endocrine Department,Shengjing Hospital of China Medical University, China*

Objectives This study aimed to investigate the role of Toll-like receptor 9 in paraquat-induced acute lung injury (ALI).

Methods C57BL mice were randomly assigned into the control group, paraquat group, paraquat + antagonist (ODN2088) group, and antagonist (ODN2088) group (n=24 per group). After paraquat 30mg/kg ip for 2, 24 and 48 h, serum samples and lung tissues were collected. A549 cells were randomly divided into the control group, paraquat group, paraquat + TLR9 siRNA group, and TLR9 siRNA group. After paraquat treatment for 24 h, the cells and supernatant were collected. TNF-α and IL-1β levels were detected by ELISA. The extent of lung injury was determined following H&E staining. TLR9, TNF-α and IL-1β mRNA expression in the cell lysis solution was measured by PCR. Immunofluorescence staining was performed to detect the distribution of TLR9 and p-p65 in A549 cells, and TLR9, MyD88, p-IRAK4 and p-p65 levels were analyzed by Western blotting.

Results The in vivo result shows that the TLR9, MyD88, p-IRAK4 and p-p65 protein levels, and cytokines TNF-α and IL-1β levels in paraquat group were significantly higher than that in the control group;TLR9 blocker odn2088 pretreatment attenuated lung edema, inhibited the MyD88 and NF-κB activation, and reduced TNF-α and IL-1β in serum. In the in vitro experiments, the gene silencing of TLR9 reduced the mRNA expression of TLR9, TNF-α and IL-1,inhibited the NF-κB activation, attenuated the cell apoptosis.

Conclusion TLR9 mediates paraquat-induced ALI,antagonizing or silencing TLR9 may attenuate paraquat-induced ALI and reduce the production of pro-inflammatory cytokines.