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Rutin Attenuates Neuroinflammation in Spinal Cord Injury Rats

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Background: Neuroinflammatory responses involve the activation of the interleukin (IL) -1 β and IL-18. Processing and activation of the pro-inflammatory IL require NLRP3 inflammasome activation. Rutin can protect spinal cord against damage, but the potential mechanisms underlying remains unknown. Here, we investigated the molecular mechanisms of rutin-mediated neuroprotection in a rat model of spinal cord injury(SCI).

Materials and methods: One hundred and twenty female Sprague-Dawley rats were randomly assigned to four groups: sham group, SCI group, SCI + Rutin50 group, and the SCI + Rutin100 group. The influences of rutin on inflammatory marker levels, histological alterations, and locomotion scale were analysed.

Results: SCI significantly increased the expression of the NLRP3, ASC, IL-1 β , IL-18 and tumor necrosis factor-a (TNF-a). Rutin significantly reduced the levels of reactive oxygen species (ROS), malondialdehyde (MDA), NLRP3, ASC, caspase-1, IL-1 β , IL-18, and TNF-a. Furthermore, rutin administration significantly attenuated histological alteration and improved locomotion recovery.

Conclusions: Our data provide clear evidence that rutin attenuates tissue damage and improves locomotion recovery, and the mechanism may be related to the alleviation of inflammation and oxidative stress.

Biography

Wu Jiang Graduated from Anhui Medical University and studied in General Hospital of Beijing Military Command. Work on experimental study of spinal cord injury.

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