KSN 2020
FULLY VIRTUAL MEETING

Abstract Type : Poster
Abstract Submission No. : PO-1727

Rutin effective against cyclosporine induced nephrotoxicity in rat model via nitric oxide pathway

Mahfoozur Rahman[1], Sarwar Beg[2], Vikas Kumar[1]
[1]Department of Pharmaceutical Sciences, Shalom Institute of Health and Allied Sciences, India
[2]Department of Pharmaceutical Sciences, SPER, Jamia Hamdard, India

Objectives: Cyclosporine A (CsA) is a potent and powerful immunosuppressant, but is often linked with significant renal toxicity. The causes of CsA nephrotoxicity were not fully clarified. Intrarenal vasoconstriction induced by various mediators was suggested in humans as well as in experimental animals. The goal of this research was to examine the potential safety effects of rutin on CsA-induced nephrotoxicity and the possible rutin mechanism.

Methods: In the study, eight groups of rats were employed, group 1 was used as control, group 2 were treated with linseed oil (CsA vehicle), group 3 rats had CsA (15 mg / kg, b.w. 21 days), groups 4, 5 and 6 had CsA treated together with rutin (5, 10 and 20mg / kg, p. o. 24 hours before and concurrently 21 days), and group 7 rats were treated with NOS inhibitor and NG-nitro-L-arginine methyl ester (L-NAME ; 10 mg / kg), respectively.
The 21-days administration of CsA induced a pronounced renal oxidative stress, altered renal function dramatically, decreased rates of tissue and urinary nitrites and significantly altered renal morphology.

Results: Rutin (10 and 20 mg / kg) therapies have significantly improved renal impairment, total tissue and urinary oxide levels, kidney oxidative stress and avoided improvements in renal morphology.
Concurrent L-NAME administration restricted the protective effect of rutin suggesting that rutin exercises its protective effect by nitric oxide production.

Conclusions: These findings demonstrate clearly the pivotal role of nitric oxide in nephrotoxicity etiology and show the potential for rutin renoprotection in CsA.