

KSN 2016 Abstract Submission

CKD & associated complications

KSN2016ABS-1272

Paricalcitol attenuates Indoxyl Sulfate-induced apoptosis through inhibition of NF- κ B and Akt activation in human proximal tubular HK-2 cells

Jung Sun Park*, Hoon In Choi, Eun Hui Bae, Seong Kwon Ma, Jong Un Lee, Soo Wan Kim

Background: Indoxyl Sulfate (IS), one of the uremic toxins, is an important causative factor in progression of chronic kidney disease (CKD). The present study was aimed to investigate the effect of paricalcitol (19-nor-1,25-dihydroxyvitamin D₂) in IS-induced renal tubular apoptosis.

Methods: The fluorescent dye 2',7'-dichlorofluorescein diacetate was used to measure intracellular reactive oxygen species (ROS) by indoxyl sulfate (IS) in human renal proximal tubular epithelial (HK-2) cells. The effects of IS on cell viability of HK-2 cells were determined using MTT assays. Levels of apoptosis-related proteins (Bax and Bcl-2), NF- κ B p65 and phosphorylation of MAPK and Akt were determined by semiquantitative immunoblotting and nuclear factor NF- κ B promoter activities were measured by luciferase assays. Apoptosis was determined by flow cytometry of cells stained with fluorescein isothiocyanate-conjugated annexin V protein and propidium iodide.

Results: IS treatment increased ROS production and decreased cell viability and induced apoptosis in HK-2 cells. IS treatment increased apoptosis-related proteins Bax and decreased Bcl-2 and activated phosphorylation of MAPK and NF- κ B p65 and Akt. Treatment of paricalcitol decreased Bax and increased Bcl-2 and inhibited phosphorylation of MAPK and NF- κ B p65 and Akt in HK-2 cells. NF- κ B promoter activities were increased by IS and this increase was decreased by pre-treatment of paricalcitol. Flow cytometry analysis showed IS-induced apoptosis, which was attenuated by paricalcitol treatment. Paricalcitol leads to decreased number of fluorescein isothiocyanate-conjugated annexin V protein cells.

Conclusion: Treatment of paricalcitol inhibits IS-induced apoptosis by regulating MAPK and NF- κ B and Akt signal pathway in HK-2 cells.

Table: Treatment of paricalcitol inhibits IS-induced apoptosis by regulating MAPK and NF- κ B and Akt signal pathway in HK-2 cells.

Keywords: None