Jin Hyun Kim et al., J Tissue Sci Eng 2017, 8:3 (Suppl)
DOI: 10.4172/2157-7552-C1-037

Paricalcitol protects the kidney injury against radiocontrast in mice

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Radiocontrast-induced nephropathy (RCIN) is an important problem in clinical settings. However, strategies to prevent RCIN have been suboptimal. Paricalcitol was recently found to be effective in a variety of renal animal models, so it was hypothesized that paricalcitol would prevent RCIN. RCIN was induced in rats by injection of the radiocontrast medium Ioversol in addition to inhibition of prostaglandin and nitric oxide synthesis. Administration of two doses of paricalcitol before the induction of nephropathy significantly reduced the renal dysfunction and histologic tubular injury. The apoptosis of renal tubular cells was inhibited by paricalcitol. Oxidative stress markers such as 8-OhdG and NOX-2, NADPH oxidase, were highly expressed in nephropathy rat model, but attenuated by paricalcitol administration. β-galactosidase, one of markers of cellular senescence, increased in tubules after contrast infusion. This was alleviated by paricalcitol. Furthermore, the expression of LC3, PINK1 and Parkin, representatives of mitochondrial autophagy, after radiocontrast injection was highly attenuated by administration of paricalcitol, suggesting that the effects of paricalcitol might be mediated by the autophagy pathway. These findings suggest that paricalcitol may have potential as a new therapeutic approach to prevent RCIN.

Biography

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