Saxagliptin improves functional outcome after renal ischemia/reperfusion injury via multiple mechanisms

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Saxagliptin, a potent dipeptidyl peptidase (DPP)-4 inhibitor, is currently used to treat type 2 diabetes mellitus; however, its potential role against the renal ischemia/reperfusion (I/R) insult has not been elucidated. Saxagliptin (10 and 30 mg/kg; p.o. 5 days) was administered after acute renal 1-hour ischemia followed by 5 days reperfusion in rats. Saxagliptin reduced serum creatinine, cystatin C, blood urea nitrogen, and increased serum albumin. These alterations were corroborated by the suppression of renal I/R-induced microscopic pathologic observations. The gliptin dose dependently, decreased renal DPP-4 activity, increased cyclic adenosine monophosphate and glucagon like peptide-1. Moreover, the drug suppressed renal phosphoserine 536 nuclear factor-κB p65, monocyte chemoattractant protein-1, myeloperoxidase, malondialdehyde, and tumor necrosis factor-α. Meanwhile, saxagliptin boosted renal glutathione content. Accordingly, saxagliptin treatment ameliorated renal damage induced by I/R via its anti-inflammatory and antioxidant properties.

Biography

Nada M Kamel has her passion in improving the health and wellbeing of people. She started her career as a demonstrator of Pharmacology and Toxicology at the Faculty of Pharmacy, Cairo University. Her work is based on decreased mortality rates and organ rejection after transplantation surgeries. For this study, she used Wistar rats and renal ischemia/reperfusion model.

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