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Amelioration of Cyclosporine induced Nephrotoxicity by Dipeptidylpeptidase inhibitior Vildagliptin

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Cyclosporine A (CsA) is an immunosuppressive drug used in organ transplantation and autoimmune diseases but its clinical uses may be limited due to its dose-related nephrotoxicity. This study was carried out to evaluate the possible protective effects of vildagliptin (VLD) against CsA-induced nephrotoxicity in rats. Animals were divided into four groups treated as follows: control group (CsA & VLD vehicle); VLD group (10 mg/kg/day, orally); CsA group (20 mg/kg in sunflower oil, S.C.); and CsA-VLD group (CsA &VLD). Induced nephrotoxicity was evidenced by a significant elevation of serum creatinine, blood urea nitrogen (BUN), lactate dehydrogenase (LDH) and urinary micro total proteins (MTP), while serum albumin and urinary creatinine clearance were significantly decreased compared to control group. Moreover, renal dysfunction was further confirmed by a significant increase in renal lipid peroxide that was measured as renal malondialdehyde (MDA). Renal reduced glutathione (GSH) and superoxide dismutase (SOD) were significantly decreased. Nephrotoxicity was further confirmed by renal tissues histopathology. Also, a high protein expression of Bax with decreased Bcl-2 was revealed in renal tissue of CsA treated group. Administration of VLD significantly ameliorated the nephrotoxic effects of CsA suggesting antioxidant, anti-inflammatory and anti-apoptotic benefits of VLD in CsA-induced nephrotoxicity.

Biography

Hayam Ateyya has completed her MBBch degree in Medicine & Surgery from Cairo University, Faculty of Medicine and MD Degree in Pharmacology from Cairo University, Faculty of Medicine. She is working now as Assistant Professor at Taibah University in KSA.

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