

EFFECT OF HUMAN UMBILICAL CORD BLOOD-DERIVED MONONUCLEAR CELLS ON DIABETIC NEPHROPATHY IN RATS

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Diabetic nephropathy (dn) is damage to the kidney which can lead to chronic renal failure, eventually requiring dialysis. Diabetes mellitus is the most common cause of adult kidney failure worldwide in the developed world. The current work was designed to elucidate the effect of mononuclear cells (mncs) injection on reverse dn in rats exposed to streptozotocin (stz) injection compared to metformin as a known hypoglycemic drug, 40 male rats were divided equally into four groups; normal control group, diabetic control group, mncs group were diabetic rats treated with mncs (30×10^6 mncs/rat once iv dose) in the tail vein of the rat, and metformin group were diabetic rats treated with metformin (100 mg/kg orally daily dose) for four weeks. The results indicated an improvement effect of mncs and metformin on stz-induced dn in rats, which was evidenced by significant decrease in urinary albumin/creatinine ratio, n-acetyl- β -d-glucosaminidase (nag), urinary kidney injury molecule-1 (kim-1), serum urea, serum creatinine and fasting blood glucose and significant increase in c-peptide level, compared to diabetic control group. Additionally, mncs treated group exhibited pronounced effects in all previous parameters compared to metformin treated group. It is proved that mncs treatment was superior to metformin in controlling hyperglycemia and improving renal function in diabetic rats.