



SODIUM ACETATE AND METFORMIN AMELIORATE RENAL DYSFUNCTION IN STREPTOZOTOCIN INDUCED DIABETES IN MALE MICE

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Abstract

Diabetes is a metabolic disorder, characterised by chronic hyperglycemia, which can lead to oxidative stress and lipid peroxidation. Diabetes mellitus particularly type 2 contribute to global epidemics which can lead to cardiovascular disease and renal dysfunction. Diabetes mellitus is a growing health concern worldwide, with streptozotocin-induced diabetes being a commonly used model for studying type 1 diabetes. Diabetic nephropathy is one of the major complications of diabetes that is characterized by renal dysfunction and damage. Current treatments have limitations, necessitating the exploration of novel therapeutic strategies. This study investigated the effect of sodium acetate on renal dysfunction in streptozotocin induced diabetic in male mice. The main objective was to evaluate the potential reno-protective effects of sodium acetate and metformin on renal dysfunction in streptozotocin-induced diabetic mice. Twenty male mice were used. Diabetes was induced in male mice using streptozotocin, and the animal were grouped into three group after the induction. One group was treated with sodium acetate for 5 weeks while the other group was treated with the combination of sodium acetate and metformin for five weeks (5 weeks). In assessing the renal function it was done by measuring the creatinine levels and albumin levels. The result showed a significant increase in creatinine and bilirubin level in diabetes group compare to the treated group. The treated group showed a greater improvement in renal function. This suggests the possible use of sodium acetate and metformin to ameliorate renal dysfunction in diabetes, by mitigating oxidative stress and inflammation. Sodium acetate and metformin show anti-diabetic properties by ameliorating renal dysfunction in streptozotocin-induced diabetic in male mice, by reducing oxidative stress and inflammation.

Keywords: Sodium acetate, metformin, streptozotocin and Diabetes