EVALUATION OF PIOGLITAZONE NANO CARRIER SUSPENSION ON INDUCTION OF TYPE-II DIABETES MELLITUS IN RATS BY STREPTOZOTOCIN-NICOTHIAMIDE

Abstract

Objective: We hypothesized that the optimized NCS-PGZ HCl might be a better pharmacotherapeutic alternative for T2DM induced in rats by Streptozotocin and Nicotinamide in rats. **Methodology:** We formulated 5 different combinations and selected F-2 NCS-PGZ HCl with a size of 30 nm, a size distribution of 9 to 95 nm, and the zeta potential ranges from -20 mV to +10 mV was selected for the evaluation of type-II diabetic study in rats. After successful induction of T2DM in rats, the fasting blood glucose and animal body weight were estimated on 0, 7th, 14th, and 21st days. At the end of 21 days after induction of T2DM, the animals were sacrificed for the lipid profile and histopathological examinations. **Results:** A significant reduction of blood glucose and body weight for NCS-PGZ HCl in comparison with moderate NCS-PGZ HCl was observed. Similarly significant percentage decrease profile for total cholesterol, triglycerides with moderate LDL, and VLDL as well as a significant increase in activity for HDL were observed for NCS-PGZ HCl. The histopathological section of the pancreas showed reduced Islets numbers with small-sized focal cytoplasmic-vacuolation reflecting the pathology of T2DM for the negative control. However, NCS-PGZ HC-treated rats showed the regenerative changes with normal cytoplasmic-vacuolation indicating the significant reversal of diabetic pathology in contrast to the mild reversal for the PGZ HCl group. **Conclusion:** As speculated the NCS-PGZ HCl exemplifies that significant effect on the pharmacotherapy of Streptozotocin and Nicotinamide T2DM treated rats and encourages to proceed for the clinical trials.

Keywords: Nano-Carrier Pioglitazone (**NCS-PGZ HCl**), Pioglitazone **(PGZ HCL)**, Type-II Diabetes mellitus, **(T2DM)**.