

ABSTRACT

This study aimed to determine the effects of vanadyl sulfate to stimulate proliferation of pancreatic β cells and characterized by an increased number of islet of Langerhans, β cell number and the number of Ki-67 expression. DM animal model was done by using male BALB/C mice induced by streptozotocin (ip) dose of 100 mg/kgBW followed by 50 mg/kgBW. DM achieved when blood glucose levels > 300 mg / dL. Animals were then grouped into 5 groups: normal group, DM group, and treatment group of vanadyl sulfate (po) dose of 5 mg/kgBW, 30 mg/kgBW, or 100 mg/kgBW ($n = 6$) for 7 days. Animal then sacrificed, stained, and scored by Allred method. Statistical result by using One-Way Anova showed that there is significant differences in blood glucose levels ($p = 0,0129$), only between normal group and DM group. There is no significant difference for the number of islet of Langerhans between groups. For the number of β cells showed there is significant difference ($p < 0,05$) between groups with an increase in the number of β cells along with increasing doses of vanadyl sulfat. While the number of Ki-67 expression showed no significant difference between groups. it can be conclude that vanadyl sulfate may improve pancreatic β cell proliferation, but without an increase in the number of islets of Langerhans and increased expression of Ki-67. The mechanism of how the proliferation of pancreatic β cells still needed a further research.

Keyword: Vanadyl sulphate, proliferation, β cell, Islet Langerhans, Ki-67