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ABSTRACT

Hydroxocobalamine influence on MLD-STZ diabetic Wistar rats — Type 1 Diabetes Mellitus Model.

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Nitric oxide has a very wide physiological function, however in excess, the radical causes negative effects on cells. Studies indicate that nitric oxide promotes autoimmune reaction and mediates destruction in islet cells both in human and type 1 Diabetes Mellitus model rat. In this Study hydroxocobalamin was used for studying nitric oxide role on the pathogenesis of MLD-STZ (Multiple low doses streptozocin) diabetic Wistar rat—type 1 Diabetes Mellitus model. The vitamin is a nucleophile that easily reacts with nitric oxide to form nitrosocobalamin which will be then excreted in urine.

Rattus Norvegicus, male. Wistar strain, age 4 weeks, were induced by 20 mg/kg/day of Streptozocin, in 5 consecutive days intraperitoneally. The dose of streptozocin evoke MLD-STZ Diabetes Mellitus—Type1 Diabetes Mellitus model, 4 weeks after the last streptozocin administration.

In this Study, Five days after the last intraperitoneally administration of streptozocin dose of 20 mg/kg/day, the rats received hydroxocolamin 20 mg/kg/day intramuscularry five times during 4 weeks. The administered dose of hydroxocobalamin :1) lowered insulitis index, 2) reduced expression of iNOS enzyme in islet, 3) reduced nitrate and nitrite serum level , and 4) corrected rats blood glucose level.

The design used in this experiment was the post test only control group design, using Anova for statistical Analysis, and 5% level of significance.

Key words: Hydroxocobalamin, Type I Diabetes Mellitus, Streptozocine, Nitric Oxide, MLD-STZ diabetic rat.

Disertasi Pengaruh Hidroksokobalamin Terhadap .... Doti Wahyuningsih