

EFFECT OF HYPERGLICEMIA DURING PREGNANCY TO FETAL TOOTH GERM GROWTH AND DEVELOPMENT**Muhammad Nadhir Alkaff, Dwi Merry Christmarini Robin, Nawang Lintang Clearestha and Mei Syafriadi**

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Diabetes mellitus (DM) is a chronic metabolic disease characterized by hyperglycemia caused by pancreatic insulin production deficiency or ineffectiveness of the insulin produced. The objective was to determine the effect of fetal tooth germ growth and development disturbance due to diabetic hyperglycemia during pregnancy. About five pregnant rats were induced by diabetes using 40 mg/kg bw streptozotocin intraperitoneally and five pregnant normal rats as a control group. Pregnant rats with blood glucose level ≥ 200 mg/dl were considered as diabetes group. Blood glucose level was measured before, after diabetes induction and just after birth. One rat offspring sample taken from each mother rats using simple random sampling and euthanized on 1st day postnatal. Rat offspring right maxilla was taken and decalcified to observe tooth germ growth and development. Each tissue samples in paraffin-embedded tissue was cut 4 μ m in thickness as many three slides for stained using haematoxylin-eosin, Mallory's trichrome and insulin-like growth factor 1 (IGF-1) immunohistochemistry staining. Pregnant rats were induced by streptozotocin showed increasing in blood glucose with average 410 ± 67.5 mg/dl and reduced after birth to 271 ± 66.9 mg/dl. Rat offspring who born from diabetic mother showed lower body weight which is statistically significant, histologically delayed of enamel matrix formation, delayed of tooth development stages, and reduced in tooth size compared to control group. Therefore, seems different of IGF-1 expression in inner enamel epithelium tooth germ between two groups. Rat offspring who born from diabetic mother suggested had tooth germ growth and development disturbance.

BIOGRAPHY

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