ABSTRACT

MECHANISM OF PLACENTAL ENDOTHELIAL DYSFUNCTION BECAUSE OF MILD REGULAR EXERCISE IN MUS MUSCULUS WHICH WERE INJECTED BY ANTI QA2

Experimental Research in Animal Model of Endothelial Dysfunction as Preeclampsia Induction

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Introduction: according to Preeclampsia community guideline (PRECOG), preeclampsia was identified by hypertension (diastol blood pressure ≥ 90 mmHg) and proteinuria in 20 weeks of gestation. Data of Indonesian Health Ministry showed that hypertension was the second cause of maternal mortality after haemorrhage in 2010-2013. The effect of preeclampsia was fatal for mother and fetal. Effective management was prevention. One of preeclampsia prevention which could be done by all of people was regular exercise. It could increase IL10 and antioxidant like SOD that could prevent endothelial dysfunction as early process of preeclampsia.

Objective: to analyze the mechanism of placental endothelial dysfunction because of mild regular exercise in mice which were injected by anti QA2 as endotel dysfunction model inducing preeclampsia.

Material and Method: this research was true experimental using post test only with control group design. This research consisted of 4 groups: K1 (normal pregnant mice), K2 (endothelial dysfunction model), K3 (endothelial dysfunction model with mild regular exercise since early pregnant) and K4 (endothelial dysfunction model with mild regular exercise since 1 week before pregnant). The exercise used treadmill without angle for 18 minutes once in 2 days for 2 weeks.

Results: placental IL10 level in K2 and K3 were lower than K2, but only K2 and K4 that was significant difference. Placental IFN-γ level in K3 and K4 were higher than K2 but not significant difference. Placental SOD activity in K3 was higher than K2 but not significant difference. Placental SOD activity in K4 was lower than K2 and significant difference. Placental MDA level in K3 was lower than K2, but not significant difference. Placental MDA level in K4 was higher than K2 but not significant difference. Placental VCAM1 level in K3 was lower than K2 and significant difference, but placental VCAM1 level in K4 was higher than K2 and significant different, but placental VCAM1 level in K4 was almost the same with K1 as normal pregnant.

Conclusion: mild regular exercise since early pregnant could decrease placenta VCAM1 level, so it could decrease endothelial dysfunction. Major mechanism which was influenced more by mild regular exercise was oxidative stress than inflammation.

Keywords: mild regular exercise, stress oxidative, inflammation, endothelial dysfunction