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THE EFFECTS OF PHALERIA MACROCARPA (SCHEFF.) BOERL EXTRACT ON TNF-? AND LC3-II LEVEL IN PREECLAMPSIA-INDUCED HUMAN UMBILICAL VEIN ENDOTHELIAL CELL (HUVEC) CULTURE

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Context.Preeclampsia is a major cause in both maternal and perinatal mortality and morbidity. The etiopathogenesis of preeclampsia remains unclear but endothelial dysfunction plays important role. Stress oxidative in placenta produces free radicals, trophoblast debris, pro-inflammatory cytokines, and antiangiogenic factors which are thought to cause vascular endothelial dysfunction. TNF-? is considered as one of the potentially specific markers for preeclampsia. Autophagy also plays an important role in the pathophysiology of preeclampsia as observed in the failure of trophoblast invasion and spiral artery remodeling. Autophagy can be induced by many overlapping factors such as intracellular stress due to hypoxia. LC3-II is used as a typical marker of autophagosome formation in autophagy. It is proven that TNF-? caused an increase in expression of LC3-II in trophoblast cell line cultures. HUVEC culture is an in vitro model widely used to study the pathogenesis of preeclampsia. Phaleria macrocarpa (Scheff.) Boerl is widely used as an anti-inflammation in Indonesia because of alkaloids, saponins, flavonoids and polyphenols properties.

Objective.This study aimed to determine the effects of Phaleria macrocarpa (Scheff.) Boerl Extract on inflammation and autophagy in endothelial cells by measuring the TNF-? and LC3-II level in preeclampsia-induced HUVEC.

Patients.Serum samples used were obtained from women at >20 - 42 weeks of gestational age, which were diagnosed preeclampsia at Dr. Hasan Sadikin General Hospital, Bandung, Indonesia. Research subjects have fulfilled inclusion and exclusion criteria.

Intervention.The normal pregnancy and pregnancy model were treated with ten concentrations of Phaleria macrocarpa ranged from 0.977 to 250 ?g/mL.

Main Outcome Measure.In this study we measured the TNF-? and LC3-II level in preeclampsia-induced HUVEC.

Result.Our results showed the Phaleria macrocarpa's extract reduce TNF-? level siginificantly at concentration of 7.813 ?g/mL. Phaleria macrocarpa's extract at concentration of 62.5 ?g/mL reduce TNF-? level to normal level. There was no significant decrease in mean LC3-II levels between control and PE model and Phaleria macrocarpa's extract at concentration more than 250 ?g/mL needed to reduce LC3-II level in preeclampsia model to normal pregnancy level.

Conclusion.Thus, Phaleria macrocarpa's extract might be used as agent to overcome endothelial dysfunction and autophagy in preeclampsia.

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