

The Effects of Endogenous and Exogenous Estrogen on Platelet AggregationPark, Yoo Sin^{*1} • Jung, Wha Soon² • Chang, Yu Kyung¹

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In the atherosclerotic subjects, arterial endothelial cell injury and plaque formation are suspected to be strong causable factors to develop acute coronary syndrome, and it was revealed that platelets have a very important role in this case. Women have their own menstrual cycle, and endogenous estrogen level is decreased significantly after menopause. According to endogenous estrogen level and oral contraceptive administration(exogenous estrogen), women are exposed to atherosclerosis at a very different degree. The purpose of this study was to determine the effects of endogenous and exogenous estrogen on the degree of platelet aggregation in platelet rich plasma(PRP) in twenty nonsmoking healthy Korean women for 12 weeks. The subjects were assigned to three groups : (1) eight women aged 22 to 30(yr) for the premenopausal(Pre) group, (2) eight, aged 49 to 60(yr) for the postmenopausal(Pst) group, (3) four, aged 23 to 30(yr) for the oral contraceptive(OC) group which used triphasic OC formulation. Fasting blood samples were obtained from the subjects, (1) once per 6 weeks in the Pst group, (2) every phase of the menstrual cycle in the Pre group, (3) each once during and after OC administration in the OC group. ADP, collagen and epinephrine were used as aggregating reagents, and platelet aggregation and time(Δt) in PRP were measured at the maximum point of aggregation. All the data were adjusted for dietary effects, exercise, personality type and body mass index (BMI) by using analysis of covariation(ANCOVA). Platelet aggregation to ADP and collagen(MADP and MCOLL) weren't significantly different among the three groups, and Δt (time reaching to the maximum point of aggregation) to ADP and collagen(TADP and TCOLL) weren't either. But, maximum platelet aggregability and Δt to epinephrine(MEPIN and TEPIN) were significantly different among the three groups, the OC group showed the lowest value($P < 0.01$). Maximum platelet aggregability and Δt during the menstrual cycle weren't significantly different in the Pre group. In a result, maximum platelet aggregability and time(Δt) to ADP and collagen are seemed not to be affected by endogenous and exogenous estrogen, MEPIN and TEPIN showed significantly low in the OC group among the three groups. However the lack of number of patients, especially in the OC group, we cannot conclude that the result of this study is an universal fact.