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ER- α Receptors Have More Prominent Depressor Role On Vasoconstrictile Sensitivity in Treated And Untreated-Ovariectomized Rat Mesentery Artery

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Abstract

Natural estrogens have cardioprotective effects in premenopausal women. Nuclear estrogen receptors mediate genomic effects of estrogens. G-protein coupled estrogen receptors are also defined cardiovascular system and mediate rapid non-genomic effects. The role of estrogen receptor ER- α and ER- β on vasculature system is not completely understood. In this study, we investigated the effects of ER- α and β on α_1 -adrenergic receptor mediated vasoconstriction in control (C), 16-week ovariectomized (O) and 17- β estradiol (E2) treatment ovariectomized-rat (OE) mesentery arteries. Phe-mediated concentration response curves (CRC) were obtained from C, O and OE groups in the presence and absence of non-selective ER agonist E2 (0.1 μ M), selective ER- α agonist PPT (0.1 μ M) and selective ER- β agonist DPN (0.1 μ M). Phe-mediated CRC shifted to right presence of PPT in C (pD_2 :6.32 vs pD_2 : 5.80), O (pD_2 :6.40 vs pD_2 : 5.79) and OE (pD_2 : 6.52 vs pD_2 :6.08) groups. After E2 incubation, Phe-mediated CRC only shifted to right in C group (pD_2 :6.40; pD_2 : 5.80), but insignificantly shifted to right in O (pD_2 :6.40 vs pD_2 :6.13) and OE (6.52 vs. 6.21) groups. On the other hand, DPN incubation did not change Phe-mediated CRC in all groups.

In conclusion, ER- α receptor mediated responsiveness have more prominent depressor effects on vasoconstrictile sensitivity in all group.

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