

INTISARI

PENGARUH OVARIEKTOMI TERHADAP KADAR ESTROGEN DAN KADAR KALSIUM (Ca) DALAM DARAH MONYET EKOR PANJANG (*Macaca fascicularis*) SEBAGAI HEWAN MODEL MENOPAUSE

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Menopause merupakan suatu proses alami yang berkaitan dengan pertambahan usia pada primata betina, ditandai dengan berhentinya siklus menstruasi secara permanen. Tujuan dari penelitian ini adalah untuk mendapatkan hewan model menopause ditinjau dari kadar estrogen dan kadar kalsium (Ca) dalam darah *Macaca fascicularis* secara buatan (artifisial) sehingga menyerupai kondisi menopause pada manusia. Penelitian menggunakan 2 ekor *Macaca* betina dewasa (Hewan Model I dan II) yang diberi perlakuan ovariectomi kemudian dilakukan pengambilan darah sebanyak 5 kali pengambilan dalam kurun waktu 7 bulan. Sampel serum yang didapat kemudian dianalisis menggunakan metode *Enzyme-Linked Immunosorbent Assay* (ELISA) sehingga diperoleh hasil kadar estrogen Hewan Model I pada minggu ke-1, ke-2, dan ke-8 pascaovariectomi adalah 296,49 pg/mL, 141,17 pg/mL, dan 49,01 pg/mL. Kadar estrogen Hewan Model II pada minggu ke-1, ke-2, ke-3, ke-8, dan ke-9 pascaovariectomi adalah 47,09 pg/mL, 196,37 pg/mL dan 22,29 pg/mL, 203,57 pg/mL, dan 23,29 pg/mL. Analisis kadar kalsium dalam plasma menggunakan metode Spektrofotometer diperoleh hasil pada minggu ke-1, ke-2, ke-3, ke-8, dan ke-9 pada Hewan Model I adalah 2,51 mmol/L, 2,55 mmol/L, 2,09 mmol/L, 2,41 mmol/L, dan 2,14 mmol/L, sedangkan pada Hewan Model II didapat hasil sebesar 2,06 mmol/L, 1,81 mmol/L, 1,80 mmol/L, 2,40 mmol/L, dan 2,53 mmol/L. Hasil tersebut menunjukkan bahwa terdapat penurunan baik kadar estrogen maupun kadar kalsium pada kedua Hewan Model pascaovariectomi. Hewan Model I mengalami penurunan yang cukup drastis pada Minggu ke-8 pascaovariectomi. Hal serupa juga terjadi pada Hewan Model II dimana kadar estrogen dan kadar kalsium mengalami penurunan yang cukup drastis terjadi pada minggu ke-3 pascaovariectomi. Berdasarkan hasil tersebut dapat dikatakan bahwa hilangnya sumber estrogen pascaovariectomi berpengaruh terhadap kadar kalsium dalam plasma. Ovariectomi dapat digunakan sebagai metode *artificial* menopause pada hewan *Macaca fascicularis* ditinjau dari adanya penurunan kadar estrogen dan pengaruhnya terhadap kadar kalsium (Ca) dalam darah.

Kata kunci: Menopause, *Macaca fascicularis*, ovariectomi, estrogen, kalsium.

ABSTRACT

EFFECT OF OVARICTOMY ON ESTROGEN AND CALCIUM (Ca) LEVELS IN BLOOD OF LONG-TAILED MACAQUE (*Macaca fascicularis*) AS AN ANIMAL MODEL OF MENOPAUSE

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Menopause is a natural process associated with age in female primates. It is characterized by the cessation of the menstrual cycle permanently. The purpose of this study is to get an animal model of menopause based on estrogen and calcium (Ca) levels in blood of *Macaca fascicularis*. The research was done artificially to imitate the menopause process in humans. Two adult female (Animal Model I and II) macaques were ovariectomized. The blood were sampled five times in 7 months postovariectomy. Serum samples were obtained and then analyzed with *Enzyme-Linked Immunosorbent Assay* (ELISA) method to obtain levels of estrogen in serum of blood. The estrogen level of Animal Model I on the 1st, 2nd, and 8th week measured were 296.49 pg/mL, 141.17 pg/mL, and 49.01 pg/mL. Level estrogen of Animal Model II on the 1st, 2nd, 3rd, 8th, and 9th week were 47.09 pg/mL, 196.37 pg/mL, 22.29 pg/mL, 203.57 pg/mL, and 23.29 pg/mL. Calcium levels in plasma analyzed using Spectrophotometer method. The results of calcium levels of Animal Model I on the 1st, 2nd, 3rd, 8th, and 9th week obtained were 2.51 mmol/L, 2.55 mmol/L, 2.09 mmol/L, 2.41 mmol/L, and 2.14 mmol/L, while in Animal Model II obtained results were 2.06 mmol/L, 1.81 mmol/L, 1.80 mmol/L, 2.40 mmol/L, and 2.53 mmol/L. These results indicate there is a decrease in estrogen and calcium levels postovariectomy. Animal Model I known to have decreased drastically in the 8th week postovariectomy. There was a similar pattern of decreasing in estrogen levels and calcium levels performed in Animal Model II that occurred on the 3rd week after the ovariectomy surgery. Based on these results it can be concluded that there is an effect towards the estrogen and calcium level in blood after the ovariectomy surgery performed. It can be said that ovariectomy can be used as a an artificial method in *Macaca fascicularis* in order to obtain an animal model of menopause.

Keywords: Menopause, *Macaca fascicularis*, ovariectomy, estrogen, calcium.