

ABSTRAK

PENGARUH KALSITRIOL TERHADAP HISTOPATOLOGIK UTERUS TIKUS OVARIKTOMI PASCA DIBERI DIET FOSFOR TINGGI

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Diet fosfor tinggi pada tikus ovariektomi memicu terjadinya atrofi pada uterus yang diduga terkait dengan turunnya kalsitriol dan hormon estrogen. Penelitian ini dilakukan untuk mengkaji pengaruh suplementasi kalsitriol terhadap histopatologi uterus tikus ovariektomi pasca diberi diet fosfor tinggi.

Lima belas ekor tikus Wistar betina berumur delapan minggu dibagi menjadi tiga kelompok yaitu kelompok kontrol non-ovariektomi (Ss), kelompok ovariektomi yang diberi diet fosfor tinggi (Ts), dan kelompok ovariektomi yang diberi fosfor tinggi dan kemudian kalsitriol (Tc). Tikus Ss diberi pakan standar, tikus Ts diberi pakan fosfor tinggi selama tujuh minggu kemudian diberi pakan standar selama lima minggu, dan tikus Tc diberi pakan fosfor tinggi selama tujuh minggu kemudian diberi pakan standar dan suplementasi kalsitriol 80 ng/tikus/hari selama lima minggu. Pada akhir penelitian, tikus dietanasi dan dinekropsi, uterus tikus diambil, ditimbang beratnya, dan difiksasi dalam formalin 10% untuk pemeriksaan histopatologi dengan pengecatan hematoxylin eosin.

Hasil analisis menunjukkan persentase berat uterus tikus Ts lebih rendah signifikan ($P < 0,05$) dibanding tikus Ss, sedangkan berat uterus tikus Tc lebih rendah signifikan ($P < 0,05$) dibanding tikus Ts. Hasil pemeriksaan histopatologi uterus tikus Ss terlihat normal, epitel endometrium berbentuk kolumner simpleks, pada stroma endometrium terlihat banyak serabut kolagen dan sedikit glandula uterina. Uterus tikus Ts menunjukkan endometrium dibatasi oleh epitelium skuamus simpleks, glandula uterina sedikit, dan terjadi atrofi pada miometrium. Tikus Tc memiliki endometrium yang dibatasi oleh epitelium kolumnar simpleks dan kuboid simpleks, glandula uterina lebih banyak dari uterus tikus Ts, dan terjadi atrofi pada miometrium. Berdasarkan hasil penelitian dapat disimpulkan bahwa suplementasi kalsitriol 80 ng/tikus/hari selama lima minggu pada tikus ovariektomi yang diberi diet fosfor tinggi selama tujuh minggu dapat memperbaiki endometrium yang ditandai dengan epitel berbentuk kolumnar simpleks dan kuboid simpleks dan meningkatkan jumlah glandula uterina, meskipun menyebabkan penurunan persentase berat uterus karena terjadi atrofi dan penurunan tebal miometrium.

Kata kunci: diet fosfor tinggi, kalsitriol, ovariektomi, uterus.

ABSTRACT

THE EFFECT OF CALCITRIOL ON UTERINE HISTOPATHOLOGY OF OVARIECTOMIZED RATS AFTER BEING GIVEN HIGH PHOSPHORUS DIET

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High phosphorus diet in ovariectomized rats triggers uterine atrophy that is assumed to be related in the decrease of calcitriol and estrogen hormone. This study was conducted to examine the effect of calcitriol supplementation on the uterine histopathology of ovariectomized rats after being given high phosphorus diet.

Fifteen female Wistar rats with the age of eight week old were divided into three groups namely: the non-ovariectomized control group (Ss), ovariectomized group which was given high phosphorus diet (Ts), and ovariectomized group which was given high phosphorus diet and then calcitriol (Tc). Ss rats were given standard feed, Ts rats were given high phosphorus feed for seven weeks and standard feed for five weeks, and Tc rats were given high phosphorus feed for seven weeks and standard feed plus 80 ng/rat/day calcitriol supplementation for five weeks. At the end of the study, all rats were euthanized and necropsied, rat uterus was removed, weighed, and fixed in 10% formalin for histopathological examination with hematoxylin and eosin staining.

The analysis result showed that the percentage of uterine weight of Ts rats was significantly decreased ($P < 0,05$) compared to Ss rats, whereas the uterine weight of Tc rats was significantly decreased ($P < 0,05$) compared to Ts rats. The result of histopathological examination of Ss rats came out to be normal, the shape of its endometrial epithelium was simple columnar, there was a lot of collagen fibers in endometrial stroma, and there was atrophy in uterine glands. The uterus of Ts rats showed that the endometrium was lined by simple squamous epithelium, small number of uterine glands, and myometrial atrophy. Endometrium of Tc rats was lined by simple columnar and simple cuboidal epithelium, the number of uterine gland was increased compared to Ts rats, and there was atrophy in myometrium. Based on the results of the study, it could be concluded that the supplementation of calcitriol 80 ng/rat/day for five weeks in ovariectomized rats that were given high phosphorus diet for seven weeks could improve the structure of the endometrium that was marked with epithelium in the form of simple columnar and simple cuboidal and increased number of uterine glands despite causing decrease in percentage of uterine weight because of myometrial atrophy and reduction of myometrial thickness.

Keywords: high phosphorus diet, calcitriol, ovariectomy, uterus.