

ABSTRAK

PENGARUH LAMA PEMBERIAN PAKAN FOSFOR TINGGI TERHADAP GAMBARAN HISTOPATOLOGIS GINJAL TIKUS OVARIEKTOMI

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Tingginya asupan fosfor menyebabkan peningkatan beban filtrasi ginjal yang dapat berperan dalam kerusakan ginjal. Lama waktu konsumsi pakan fosfor tinggi dapat mempengaruhi tingkat kerusakan. Penelitian ini bertujuan untuk mengetahui pengaruh lama pemberian pakan fosfor tinggi terhadap histopatologis ginjal tikus ovariektomi.

Sepuluh tikus Wistar betina umur 8 minggu dibagi menjadi 2 kelompok, yaitu tikus ovariektomi yang diberi pakan fosfor tinggi dengan imbalanced Ca : P = 1 : 2,5 selama 7 minggu (OPT1) dan tikus ovariektomi yang diberi pakan fosfor tinggi selama 12 minggu (OPT2). Seminggu pasca adaptasi lingkungan, semua tikus dioperasi ovariektomi (pengambilan ovarium). Sehari pasca operasi ovariektomi, tikus OPT1 diberi pakan fosfor tinggi selama 7 minggu, sedangkan tikus OPT2 diberi pakan fosfor tinggi selama 12 minggu. Tujuh minggu pasca diberi pakan fosfor tinggi, tikus OPT1 dietanasi, kemudian ginjal kanan diambil dan difiksasi dalam formalin 10% untuk pemeriksaan histopatologis dengan pengecatan HE. Dua belas minggu pasca diberi pakan fosfor tinggi, hal yang sama dilakukan terhadap tikus OPT2.

Hasil pemeriksaan histopatologis ginjal tikus OPT1 menunjukkan adanya nefrosis ringan, yang ditandai terjadi hipertropi glomerulus yang membuat ruang bowman menyempit, vakuolisasi pada tubulus kontortus proksimal dan distal sehingga tubulus melebar, dan terdapat endapan protein pada ruang bowman. Histopatologis ginjal tikus OPT2 menunjukkan hipertropi pada glomerulus yang menyebabkan ruang bowman semakin sempit bahkan tidak tampak ruang bowman, tubulus kontortus proksimal dan distal mengalami vakuolisasi dan nampak terjadi nefrosis, ada endapan protein pada ruang bowman, dan endapan kalsium pada glomerulus. Dari hasil penelitian ini dapat disimpulkan bahwa pemberian pakan fosfor tinggi dalam waktu lebih lama menyebabkan ginjal nefrokalsinosis.

Kata Kunci : Fosfor tinggi, ginjal, tikus ovariektomi

ABSTRACT

THE EFFECT OF HIGH PHOSPHORUS FEED TO HISTOPATOLOGICAL VIEW OF KIDNEY IN OVARIECTOMY RATS IN DIFFERENT LENGTH OF TIME

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The high intake of phosphorus causes an increase in the burden of kidney filtration which can play a role in kidney damage. The length of time the consumption of high phosphorus feed can affect the level of damage. This study aims to determine the effect of high phosphorus feeding time on histopathological changes in ovariectomy's rat kidneys.

Ten 8-week-old female Wistar rats were divided into 2 groups, namely ovariectomy mice fed 7 weeks of high phosphorus with a feed balance Ca : P = 1 : 2,5 (OPT1) and ovariectomy rats fed 12 weeks of high phosphorus (OPT2). A week after environmental adaptation, all rats were operated on ovariectomy (ovarian extraction). A day after ovariectomy, OPT1 rats were fed high phosphorus for 7 weeks, while OPT2 rats were fed high phosphorus for 12 weeks. Seven weeks after being fed high phosphorus, OPT1 rats were sacrificed, then the right kidney was taken and fixed in 10% formalin for histopathological examination. Twelve weeks after being fed high phosphorus, the same was done for OPT2 mice.

Histopathological examination of OPT1 kidneys showed mild nephrosis, which was characterized by glomerular hypertrophy which made the bowman space narrow, vacuolized in the proximal and distal tubule so that the tubules widened, and there were protein deposits in the bowman space. Histopathology of OPT2 rat kidneys shows hypertrophy in the glomerulus which causes the bowman space to get narrower even in the absence of bowman space, the proximal and distal tubules undergo vacuolization and nephrosis appears, and there are protein deposits in the bowman space, and glomerular calcium deposits. From the result of study, the conclusion is the provision of high phosphorus feed for a longer time make the bowman space to get narrower even in the absence of bowman space and nefrocalcinosis.

Keywords : High phosphorus, kidney, ovariectomy rat