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PENGARUH THIAMIN, KAPTOPRIL, VITAMIN E DAN HERBAL 3in1 TERHADAP KADAR KALSIUM OKSALAT DAN MALONDIALDEHID PADA TIKUS YANG DIINDUKSI ETILEN GLIKOL

ABSTRAK

Latar Belakang : Batu ginjal merupakan gangguan klinis akibat terjadinya sumbatan komponen batu yang mengkristal dan menghambat kerja ginjal pada kaliks atau pelvis ginjal karena disebabkan oleh gangguan keseimbangan pada pengendapan dan kelarutan garam di saluran urin serta ginjal akibat adanya sumbatan (Bangash *et al*., 2011). Prevalensi terjadinya penyakit batu ginjal diketahui meningkat setiap tahunnya di seluruh dunia, dan diperkirakan 1-15% orang menderita penyakit batu ginjal selama hidupnya (Morgan dan Pearle, 2016). Tujuan penelitian ini untuk menganalisis pengaruh obat thiamin, kaptopril, vitamin E dan herbal 3in1 terhadap kadar oksalat dan malondialdehid pada tikus induksi etilen glikol.

Metode : *Posttest Only With Control Group Design* dengan rancangan acak lengkap (RAL). Penelitian ini menggunakan 25 ekor tikus putih jantan dibagi dalam 5 kelompok yaitu kelompok kontrol negatif (EG), thiamin, kaptopril, vitamin E dan herbal 3in1. Kelompok kontrol negatif diberi induksi etilen glikol selama 28 hari dan kelompok thiamin, kaptopril, vitamin E dan herbal 3in1 diberi induksi etilen glikol selama 14 hari + obat pada hari ke 15-28. Analisis data menggunakan uji *Kruskall-Walllis* kemudian dilanjutkan dengan uji *Mann-Whitney.*

Hasil : Kadar oksalat tertinggi diperoleh pada kelompok vitamin E (12,50±0,62 %), thiamin (11,54±2,63 %), dan EG (11,52±1,14 %). Sementara itu, kadar malondialdehid tertinggi yaitu pada kelompok vitamin E dan kaptopril dengan kadar (12,50±0,62 mg/dL) dan (19,04±9,52 mg/dL) dan disusul oleh kelompok thiamin dengan kadar (14,63±10,07 mg/dL). Tidak ada perbedaan bermakna pengukuran kadar oksalat dan malondialdehid pada setiap kelompok perlakuan.

Kesimpulan : Pemberian thiamin, kaptopril, vitamin E dan herbal kamil 3in1 tidak terdapat pengaruh terhadap kadar oksalat ginjal dan malondialdehid plasma pada tikus yang diinduksi etilen glikol dengan nilai p(<0,05).

Kata Kunci: Tikus, Etilen glikol, Kalsium Oksalat, Malondialdehid

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THE EFFECT OF THIAMIN, CAPTOPRIL, VITAMIN E AND 3in1 HERBALS ON CALCIUM OXALATE AND MALONDIALDEHYDE LEVELS IN ETHYLENE GLYCOL INDUCED RATS

ABSTRACT

Background: Kidney stones are a clinical disorder due to blockage of crystallized stone components and inhibit kidney function in the renal calyx or pelvis because they are caused by a balance disorder in the deposition and solubility of salts in the urinary tract and kidneys due to the blockage (Bangash et al., 2011). The prevalence of kidney stones is known to increase every year throughout the world, and it is estimated that 1-15% of people suffer from kidney stones during their lifetime (Morgan and Pearle, 2016). The aim of this study was to analyze the effect of thiamin, captopril, vitamin E and herbal 3in1 on oxalate and malondialdehyde levels in ethylene glycol induced rats.
Methods: Posttest Only With Control Group Design with completely randomized design (RAL). This study used 25 male white rats divided into 5 groups, namely the negative control (EG), thiamin, captopril, vitamin E and herbal 3in1 groups. The negative control group was given ethylene glycol induction for 28 days and the thiamin, captopril, vitamin E and herbal 3in1 groups were given ethylene glycol induction for 14 days + medication on days 15-28. Data analysis used the Kruskall-Wallis test then continued with the Mann-Whitney test.
Results: The highest oxalate levels were obtained in the vitamin E (12,50 ± 0,62 %), thiamin (11,54 ± 2,63 %), and EG (11,52 ± 1,14 %) groups. Meanwhile, the highest levels of malondialdehyde were in the vitamin E and captopril groups with levels of (12,50 ± 0,62 mg/dL) and (19,04 ± 9,52 mg/dL) followed by the thiamin group with levels of (14,63 ±10,07 mg/dL). There were no significant differences in measurements of oxalate and malondialdehyde levels in each treatment group.
Conclusion: Administration of thiamin, captopril, vitamin E and herbal kamil 3in1 had no effect on renal oxalate and plasma malondialdehyde levels in rats induced by ethylene glycol with a p value (<0.05).
Keywords: Rats, Ethylene glycol, Calcium Oxalate, Malondialdehyde