

**ABSTRACT**

**EFFECT OF LONG TERM ADMINISTRATION OF ENERGY DRINK ON KIDNEY FUNCTION IN RATS WITH TNFRSF6B AS A MARKER**

**LUTHFIYANA RIF'ATUL 'ALAM**

Energy drink is one of food supplement that contained caffeine. Caffeine in energy drink is estimated as a risk factor of kidney function decline that lead to kidney disease. This study used 32 rats that divided by 4 groups as Control Negative (KN) administered aquadest, Control positive (KP) received caffeine solution, Higher Dosage Energy Drink (MBT) consumed energy drink at dose 7.7ml/kg BW, Lower Dosage Energy Drink (MBR) got 3.8ml/kg BW. Every group received the treatment twice a day during 60 days. Samples were collected at 0<sup>th</sup>, 40<sup>th</sup>, and 60<sup>th</sup> day of observation. Sample were collected include urine sample (creatinin and urine volume) and blood sample (creatinine and BUN). Kidney were taken after 60<sup>th</sup> day of observation by surgical operation for histopathology staining with HE and immunohistochemistry staining using TNFRSF6B.

The results of this study showed that energy drink decreased urine creatinine significantly but this results not involved in decision making process. There were decreased urine volume even though not significant. Energy drink increased serum creatinine significantly but still on the normal range of creatinine serum (0.38-0.8mg/dL). There were decreasing trend of BUN although not significant. The histopathology analysis showed the differences in glomerular and tubular structure between negative control group and the treatment groups. Immunohistochemistry analysis showed that TNFRSF6B was expressed on tubular area in all of observaton groups (KN, KP, MBT, and MBR).

The structural damage occured in treatment groups but creatinine serum still on the normal range means that kidney able to compromise and maintain their function during 60 days energy drink ingestion. Therefore, consuming energy drink for long period might increase creatinine serum but not contribute to the decrease of kidney's function.

Keywords : energy drink, caffeine, kidney function, creatinine serum, TNFRSF6B