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The Correlation Between Serum Creatinine and Kidney Superoxide Dismutase (SOD) Levels on Rats (Rattus norvegicus) Induced by High Purine Diets After Intervention of Non-Decaffeinated Coffee and Decaffeinated Coffee

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Objectives : Coffee is believed to have potential in lowering hyperuricemia. Hyperuricemia can have an impact on increased creatinine levels and decrease in antioxidants in organs. Superoxide dismutase (SOD), is one of the main type of antioxidant. This study aimed to determine the correlation between serum creatinine levels and kidney SOD levels in rats induced by a high purine diet after intervention of non-decaffeinated coffee and decaffeinated coffee.
Methods : This research used 24 male Wistar strain rats aged 1-2 months with BW of 100-150 grams. Rats were divided into four groups: normal (N), control (C), treatment 1 (T1), and treatment 2 (T2). All groups were given fed ad libitum for 1 month. The control group (C) was given 700 mg/kg BW/day of beef broth (high-purine diet), the treatment 1 group (T1) was given 700 mg/kg BW/day of beef broth + 144 mg/200 g BW/ day of non-decaffeinated coffee, and the treatment 2 group (T2) was given 700 mg/kg BW/day of beef broth + 144 mg/200 g BW/ day of decaffeinated coffee. The normal group (N) was only given fed ad libitum. At the end of the research, serum creatinine and kidney SOD levels were measured.
Results : The mean of serum creatinine (mg/dL) in N, C, T1, and T2 consecutively were 0.75 ± 0.02, 3.17 ± 0.07, 1.63 ± 0.11, and 1.14 ± 0.08. The mean of kidney SOD (%) N, C, T1, and T2 consecutively were 70.22 ± 2.41, 23.50 ± 4.60, 43.99 ± 5.43, and 59.84 ± 3.98. The result showed there is a very strong negative correlation between serum creatinine and kidney SOD with r -0.952 and significant difference with p = 0.00.
Conclusions : Serum creatinine and kidney SOD levels induced by a high purine diet after intervention of non-decaffeinated coffee and decaffeinated coffee have a strong correlation.