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EFFECT OF INDONESIAN PROPOLIS ON HEMOGLOBIN AND CREATININE LEVELS IN CHRONIC KIDNEY DISEASE RATS MODEL

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Objectives: Chronic kidney disease (CKD) is characterized by increased creatinine serum and decreased hemoglobin (Hb) level. These alterations are caused by pathogenic role of inflammation and oxidative stress in CKD. Both the administration of anti-inflammatory drugs and anti-oxidant have shown potential renoprotection in experimental models of nephropathy. Propolis, a natural resin produced by bee from plant materials, has anti-inflammatory, immunomodulatory, and anti-oxidant properties. The aim of this study was to evaluate the impact of Indonesian propolis extract (IPE) on Hb and creatinine in CKD.

Methods: Thirty-two male rats (*Rattus norvegicus*) were divided into control groups (P1), induction of unilateral ureteral obstruction (UUO) (P2), UUO + IPE doses of 50 mg.kgBW⁻¹ (P3), and UUO + IPE doses of 100 mg.kgBW⁻¹ (P4). UUO were performed after induction of general anesthesia by intramuscular injection of ketamine (0.5 mg.kg⁻¹ intramuscular), the abdominal cavity was exposed through midline incision and the left ureter was ligated at 2 points with 3-0 silk. On day 30, subjects were given intramuscular injection of ketamine and blood samples were collected through cardiac puncture for measurement of serum levels of Hb and creatinine.

Results: The results showed decrease of Hb ($p < 0.001$) and increase of creatinine level within group P2 ($p < 0.001$). Administration of IPE 50 mg.kgBW⁻¹ (P3) and 100 mg.kgBW⁻¹ (P4) also escalated Hb concentration and reduced the level of creatinine serum ($p < 0.001$).

Conclusions: IPE supplementation may be used as adjuvant therapy for patients with CKD due to their protective effect against inflammation and oxidative stress. However, further animal and clinical studies are needed to confirm our suggestions.