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In vivo nephroprotective efficacy of propolis against contrast-induced nephropathy

Sibel Silici, Murat Baykara, Mehtap Ozçelik, Osman Guler and **Nuri Erdogan**
Erciyes University, Turkey

Objective: Contrast-induced nephrophaty (CIN) is a common cause of hospital-acquired renal failures following the administration of computer tomography contrast agent Diatrizoate, but can be prevented using pretreatment with pharmaceutical compounds, such as N-acetylcystein (NAC) and Calpain. This paper explores the value of natural antioxidant compound Propolis with demonstrated benefits in health care as a potential nephroprotector.

Materials &Methods: ***In vivo*** experiments were performed with a total of 35 male rats divided equally into 5 groups: Control, Diatrizoate administered (6 mg/kg/bw i.v.) and pretreatment with either propolis (100 mg/kg/bw), NAC (300 mg/kg/bw) or Calpain (10 mg/kg/bw) 1 hr before the Diatrizoate administration (6 mg/kg/bw i.v.). Three days later, blood, urine and renal tissue samples were collected and quantitatively processed for critical biomarkers sensitive to the indicated manipulations. Specifically, Malondialdehyde (MDA), glutathione (GSH), glutathione peroxidase (GSH-Px), superoxide dismutase (SOD) and catalase (CAT) activities in renal tissue in addition to plasma urea and serum creatinine levels were measured and statistically analyzed to determine the response and efficacy of each of the selected pretreatment approach.

Results: Overall, pretreatment with Propolis was consistently proven to be more effective in restoring the values of the measured parameters to within their normal ranges compared to NAC and Calpain.

Conclusion: With its robust power to eliminate free radicals and other adverse effects induced by Diatrizoate, Propolis plays an important protective role in preventing kidney from getting CIN.

sibelsilici@gmail.com

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