

## Usefulness of NGAL to confirm long-term renal prognosis after non-cardiac surgery

Department of Internal Medicine, Inje University Seoul Paik Hospital, Mareunnae-ro 10-gil, Jung-gu, Seoul, Korea

\*Se Jun Park, Seo Hun Kim, Seo Young Yun, Seung hyup Kim, Hoseok Koo, Haeng il Ko

**Purpose:** The neutrophil gelatinase-associated lipocalin (NGAL) level following cardiac surgery is useful for predicting acute kidney damage. However, there is insufficient conclusive evidence as to whether NGAL can be used to predict subclinical acute kidney injury following non-cardiac surgery. **Methods:** We measured serum NGAL and creatinine levels in 41 patients following non-cardiac surgery, and used the definition of subclinical AKI with NGAL. **Results:** The study included a total of 41 patients. The mean age was  $64.65 \pm 17.09$  years. The value of serum creatinine was decreased 4 hours after surgery and increased 12 hours after surgery. The serum NGAL decreased after 4 hours after surgery and continued to decrease after 12 hours after surgery. The incidence of subclinical acute kidney injury determined by the 4 hour serum NGAL level was 16 (39.0%), and the incidence of serum creatinine elevation over CV was 8 (19.5%). The incidence of subclinical acute kidney injury determined by the 12 hour serum NGAL level was 11 (26.8%), and the incidence of serum creatinine over CV was 15 (36.5%). The elevation of NGAL over CV was more rapid than the serum creatinine 4 hours after surgery. For a patient with subclinical acute kidney injury, we tested the serum creatinine 6 and 12 months after surgery. The incidence of serum creatinine elevation was higher in patients with subclinical acute kidney injury compared to patients without injury, suggesting a clinical implication. **Conclusions:** We verified the usefulness of the serum NGAL level as a predictive factor for long-term renal prognosis in patient with subclinical AKI after non-cardiac surgery. **Keywords:** NGAL; Acute kidney injury; Predictive factor; Non-cardiac surgery; Creatinine

## A case report of continuous veno-venous hemodialysis (CVVHD) in acute methanol poisoning

Division of Nephrology, Department of Internal Medicine, Presbyterian Medical Center, Jeonju, Korea

\*Jun Hyoung Ahn, Hannah Ra, Jun Seok Ho, Jae Sun Song, Hyun Ju Yoon, In O Sun, Kwang Young Lee

Methanol is a common ingredient in many products such as illicit liquors, windshield washer fluids, and homemade alcoholic beverages. Whether accidental or intentional, the ingestion of methanol can be potentially fatal if not diagnosed and treated promptly. Methanol is oxidized first by hepatic alcohol dehydrogenase to formaldehyde then to formic acid, which results in acidosis, neurotoxicity and death in severe poisoning. Here reported is the case of a 46-year-old Korean woman who survived methanol intoxication. She was presumed to have ingested methanol six hours before arriving at the emergency department. She was drowsy with a Glasgow Coma Scale score of E2V4M5. She was afebrile with a blood pressure of 103/73 mmHg, a pulse rate of 77 beats/min and a respiratory rate of 24 breaths/min. Initial arterial blood gas showed a pH of 7.180, bicarbonate of 12.3 mmol/L, PaCO<sub>2</sub> of 33.0 mmHg and base excess of -14.9. Her serum osmolar gap was 249 mOsm/kg H<sub>2</sub>O and the serum anion gap was 21.7 mmol/L. Based on the history and the blood test, we diagnosed the methanol intoxication and promptly initiated continuous veno-venous hemodiafiltration (CVVHDF). CVVHDF was performed for 39 hours using the Prismaflex system (Gambro Lundia AB, Sweden) on the first day of admission at the following settings: blood flow, 150 mL/min; replacement volume, 1,000 mL/h; and dialysate, 1,000 mL/h. Two days after hospitalization, we stopped CVVHDF after the anion gap normalized. On day 5, the patient was discharged without any complications. We received the result of methanol concentrations in serum and urine from our reference laboratory when the patient discharged. The analysis detected high concentrations of methanol in blood and urine and high concentrations had decreased in both serum and urine during CVVHDF. In conclusion, our case supports that CVVHDF enhances the elimination of serum methanol by a decrease in half-life. **Keywords:** Methanol; Hemodiafiltration; Acidosis