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## EARLY DIAGNOSIS OF ACUTE KIDNEY INJURY

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**ABSTRACT:** Acute kidney injury (AKI) develops due to various diseases, especially from poisoning by chemical substances, and is often diagnosed late. Laboratory parameters such as urine output and serum creatinine levels are considered late indicators for diagnosing kidney pathology. Studying and implementing modern and specific markers for early diagnosis of kidney pathology allows for the detection of kidney diseases at early stages. One such marker is Cystatin C.

### KEYWORDS

Diagnosing kidney pathology, studying, implementing modern and specific markers.

### INTRODUCTION

To investigate the diagnostic and prognostic significance of Cystatin C in model groups of rats with AKI induced by glycerin poisoning.

**Materials and Methods:** For the study, 40 white rats weighing 180–200 grams were selected. The laboratory animals in the experiment were randomly divided into two groups:

1. The first group (control group) consisted of animals provided with regular food and distilled water.
2. The second group was the model group with AKI (acute kidney injury) induced. In this group, rats were injected with a 50% glycerin solution prepared in a 1:1 ratio with 0.9% NaCl into their leg muscles at a dose of 10 ml/kg on the first day of the study. The levels of Cystatin C and creatinine in blood and urine were measured at 12, 24, and 48 hours after the injection.

### RESULTS

According to the results of the study, the control group's blood and urine Cystatin C levels were as follows:

- Serum Cystatin C level (mg/L):  $0.4 \pm 0.3$
- Creatinine (mg/dL):  $0.6 \pm 0.1$
- Urinary Cystatin C level (mg/L):  $0.1 \pm 0.02$

- Creatinine (mg/dL):  $20 \pm 5.2$

For the AKI model group rats:

**After 12 hours:**

- Serum Cystatin C level (mg/L):  $1.2 \pm 0.3$

- Creatinine (mg/dL):  $0.6 \pm 0.2$

- Urinary Cystatin C level (mg/L):  $0.1 \pm 0.04$

- Creatinine (mg/dL):  $20 \pm 6.5$

**After 24 hours:**

- Serum Cystatin C level (mg/L):  $2 \pm 0.1$

- Creatinine (mg/dL):  $0.8 \pm 0.4$

- Urinary Cystatin C level (mg/L):  $0.1 \pm 0.06$

- Creatinine (mg/dL):  $23 \pm 5$

**- After 48 hours:**

- Serum Cystatin C level (mg/L):  $3.5 \pm 0.6$

- Creatinine (mg/dL):  $1.2 \pm 0.2$

- Urinary Cystatin C level (mg/L):  $0.1 \pm 0.08$

- Creatinine (mg/dL):  $28 \pm 2.8$

**CONCLUSION**

The use of Cystatin C as a biomarker for acute kidney diseases resulting from poisoning enables the early diagnosis of the disease.

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