



The impact of pneumoperitoneum on renal function and the development of acute kidney injury: comparison between normal and diabetic rats

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OBJECTIVES

- Minimally invasive surgery is considered the gold standard approach for many urologic surgical procedures
- Elevated intra-abdominal pressure (IAP), especially in predisposed diabetic patients may lead to post-operative acute kidney injury (AKI).
- Why AKI matters?



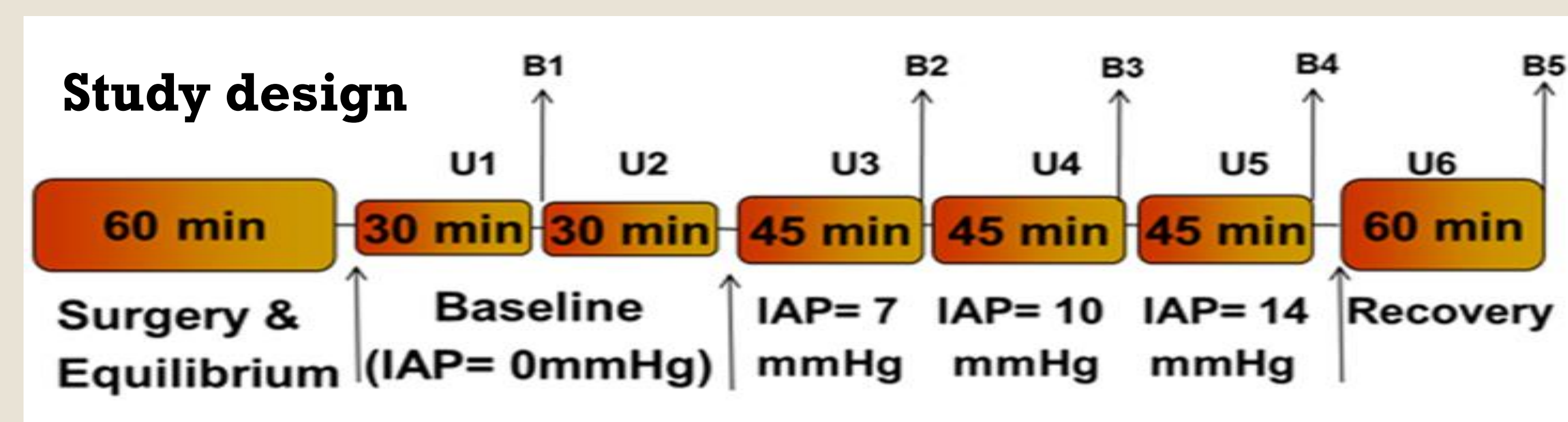
- The aim of this study was to examine whether the effect of pneumoperitoneum on the development of AKI is more pronounced in diabetic rats compared with normal rats.

CONCLUSIONS

- There is a direct correlation between IAP elevation and the development of AKI.
- Diabetic rats were more sensitive to the deleterious effect of pneumoperitoneum.
- NGAL a novel AKI biomarker was affected by pneumoperitoneum and demonstrated a marked elevation in the diabetic rat group.
- Urinary NGAL could be used as a biomarker of postoperative AKI especially in diabetic patients.

METHODS

- Rats were divided into two groups: Control (non-diabetic) rats (n=7) and diabetic rats (n=10).
- A Veress needle was used for CO₂ inflation allowing the intra-abdominal pressure to be increased to desired levels of: 7, 10 and 14 mmHg for the duration of 45 minutes each.
- At the end, CO₂ was deflated allowing pressure to decrease to 0 mmHg for 60 minutes (recovery phase).
- During each pressure point hemodynamic parameters were recorded and urine samples were collected for analysis of NGAL (neutrophil gelatinase associated lipocalin) a novel AKI biomarker.



RESULTS

