

Acute Kidney Injury and Percutaneous Nephrolithotomy: Frequency and Predictive factors.

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- Percutaneous Nephrolithotomy (PCNL) is the treatment of choice for patients with large and complex stones.
- Our objective was to assess the frequency of acute kidney injury (AKI) in patients undergoing PCNL and to identify independent predictors of AKI during hospitalization.
- Retrospective review of PCNL cases performed within our hospital system between January 2014 and June 2019.
- Patients were divided into two groups according to postoperative AKI status. Postoperative AKI was defined according to the Kidney Disease Improving Global Outcomes Criteria.
- Multivariable logistic regression analysis was performed to determine factors influencing AKI.

Table 1. Demographic, preoperative and operative characteristics.

Variables	All patients n=566 (100%)	No-AKI group n=541 (95.6%)	AKI group n=25 (4.4%)	p-value
Age, Gender, Body mass index, Smoking status, Hypertension, Diabetes Mellitus		No differences	No differences	<i>*See poster for detailed data</i>
Hemoglobin, PTT, Creatinine, Platelets		No differences	No differences	<i>*See poster for detailed data</i>
Surgical				
Operative time(min)*	87	87	88	0.6
Transfusion	24	21 (4%)	3 (12%)	0.049
Length of stay (days)*	2	2	3	< 0.001

Table 2. Multivariate analysis

Variables	OR (95% CI)	p value
Age (ref: < 40 y/o)	0.99 (0.96 – 1.02)	0.76
Gender (ref: male)	0.61 (0.26 – 1.42)	0.25
Body mass index (ref: < 25)	1.02 (0.97 – 1.06)	0.35
Smoking status (ref: no smoker)	0.65 (0.28 – 1.47)	0.29
Hypertension (ref: no HTN)	1.03 (0.44 – 2.35)	0.93
Hemoglobin, g/dL		
< 10.6 g/dl	2.47 (1.09 – 5.53)	0.02
10.6 – 12.2	0.69 (0.25 – 1.88)	0.47
12.3 – 13.8 (ref)	0.43 (0.12 – 1.44)	0.16
> 13.5	0.42 (0.13 – 1.47)	0.15
PTT, seconds (ref: 25.8)	1.01 (0.96 – 1.04)	0.84
Creatinine, mg/dL		
< 0.8	0.39 (0.17 – 0.67)	0.01
0.8 – 1.2 (ref)	0.42 (0.18 – 0.89)	0.02
1.3 – 1.5	0.71 (0.21 – 1.81)	0.47
> 1.5	2.66 (1.07 – 6.61)	0.03
Platelets (x10 ³)	0.99 (0.94 – 1.04)	0.82
Operative time in minutes (ref: 66)	1.01 (0.99 – 1.03)	0.72

Multivariable analysis

Multivariable analysis showed that preoperative hemoglobin less than 10.6 mg/dL and a serum creatinine level higher than 1.5 mg/dL were risk factors for developing AKI.

Conclusion

Perioperative AKI occurs in 4.4% of patients undergoing PCNL. Preoperative hemoglobin and serum creatinine levels may identify increased risk of AKI in certain patients, for whom it may be important to avoid nephrotoxic agents.