

CLINICAL CHARACTERISTICS OF ACUTE KIDNEY INJURY IN PATIENTS WITH ACUTE PYELONEPHRITIS BASED ON COMPUTED TOMOGRAPHY

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Background

The aim of this study is to investigate the incidence and clinical characteristics of acute kidney injury (AKI) in patients with acute pyelonephritis (APN) and evaluate the efficacy of contrast-enhanced computed tomography (CECT).

Patients and Methods

From May 2007 to December 2009, we included 541 patients with APN who underwent a CECT examination. We investigated the incidence and clinical characteristics of APN associated AKI using the RIFLE criteria. In addition, we divided these patients into four groups according to renal parenchymal involvement in CT (group 1; less than 25% involvement, group 2; 25% or greater involvement but less than 50% involvement, group 3; 50% or greater involvement but less than 75% involvement, group 4; greater than 75%), and compared their clinical characteristics, incidence of AKI.

Results

Table 1. Baseline Characteristics

Variables at Baseline	Patients (n=541)
Age (year)	55±18
Female, n(%)	508 (94)
Comorbidities, n (%)	
Diabetes mellitus	77 (14.5)
Hypertension	151 (28.5)
Chronic kidney disease	1 (0.2)
Length of hospital stay (days)	9±4
Hb (g/dL)	12.2±1.4
Platelet (x10 ³ /uL)	218.7±74.1
Serum sodium (mmol/L)	137±4
Serum creatinine (mg/dL)	0.9±0.2
Serum albumin(g/dL)	3.8±0.6
CRP (mg/L)	10.2±7.7
Glomerular filtration rate	71±25
Incidence, n (%)	
Acute kidney injury	78 (14.4)
Death	1 (0.2)
Sepsis	7 (1.3)
Abscess	23 (4.3)
Obstruction	36 (6.8)

Table 2. Comparison of clinical characteristics between patents with or without AKI

Variables	AKI (n=78)	N (n=463)	P-value
Age (years)	65±14	53±18	< 0.001
Female, n(%)	66 (86.8)	442 (95.4)	0.003
Comorbidities, n (%)			
Diabetes mellitus	21 (27.6)	55 (72.4)	0.001
Hypertension	42 (55.3)	109 (24.0)	< 0.001
Chronic kidney disease	1 (1.3)	0 (0.0)	0.143
Length of hospital stay (days)	12±6	9±4	<0.001
Hb (g/dL)	11.9±1.5	12.3±1.4	0.026
Platelet (x10 ³ /uL)	21.4±7.6	21.9±3.4	0.584
Serum sodium (mmol/L)	136±4	138±4	0.035
Serum creatinine (mg/dL)	1.3±0.2	0.8±0.2	<0.001
Serum albumin(g/dL)	3.6±0.6	3.8±0.6	0.001
CRP (mg/L)	16.1±7.6	8.9±7.2	0.002
Glomerular filtration rate	39±15	77±23	<0.001
Incidence, n (%)			
Obstruction	14 (18.4)	22 (4.9)	< 0.001
Sepsis	3 (3.9)	4 (0.9)	0.065

Summary and Conclusion

The incidence of APN-associated AKI was 14.4%. Although CECT is useful to detect severe APN, it seems to be less helpful to predict the AKI in patients with APN.

