

Long Term Outcomes of Acute Kidney Injury to/on **Chronic Kidney Disease in Thailand**

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Background

AKI has been increasingly recognized as a major risk factor for adverse long-term outcomes such as CKD, ESRD, and death. There are several mechanisms by which AKI can lead to CKD including changes in renal vasculature, glomerulosclerosis, tubular atrophy, and interstitial fibrosis. However, the epidemiology of longterm outcomes of AKI has not been well-established, especially in low-and middle income countries. Our primary aim is to explore the long-term outcomes, namely 2-year mortality and 2-year CKD progression, of AKI to/on CKD in Thailand.

Table 1 Baseline characteristics

	CKD		No CKD		P-
	AKI	No AKI	AKI	No AKI	value
Number	320	2243	541	6691	
Age, mean (SD)	69 (16)	70 (15)	52 (24)	53 (20)	< 0.001
Male, n (%)	160 (50)	1149 (51)	268 (50)	3275 (49)	0.318
Comorbidity, n (%)					
DM	124 (38.8)	867 (38.7)	89 (16.5)	901 (13.5)	< 0.001
HT	187 (58.4)	1,406 (62.7)	157 (29.0)	1,985 (29.7)	< 0.001
DLP	112 (35.0)	866 (38.6)	77 (14.2)	1,164 (17.4)	< 0.001
IHD	48 (15.0)	304 (13.6)	29 (5.4)	277 (4.1)	< 0.001
CHF	39 (12.2)	146 (6.5)	39 (7.2)	123 (1.8)	< 0.001
CVD	5 (1.6)	65 (2.9)	8 (1.5)	102 (1.5)	< 0.001
Chronic lung	(N=314)	(N=2104)	(N=479)	(N=5446)	
disease	8 (2.5)	69 (3.3)	15 (3.1)	163 (3.0)	0.871
Malignancy	56 (17.5)	275 (12.3)	114 (21.1)	961 (14.4)	< 0.001
Chronic liver	43 (13.4)	176 (7.8)	46 (8.5)	461 (6.9)	<0.001
disease					
HIV	1 (0.3)	17 (0.8)	6 (1.1)	82 (1.2)	0.154

Methods

This is a retrospective study from King Chulalongkorn Memorial Hospital, Bangkok, Thailand. We included all patients who were hospitalized during 2017 and had 3month baseline serum creatinine level. Patients who did have any creatinine measurement during not hospitalization and those with history of ESRD were excluded from this study. AKI and CKD were defined by using KDIGO criteria. Participants were divided into 4 groups based on their AKI and CKD status. CKD progression is defined by having at least one more stage from the baseline CKD status at two year.

Table 2 Clinical outcomes

	CKD		No CKD		P-
	AKI	No AKI	AKI	Νο ΑΚΙ	value
Number	320	2243	541	6691	
Hospital death, n (%)	131 (40.9)	93 (4.2)	127 (23.5)	137 (2.1)	< 0.001
Death at 2-year, n (%)	(N=184) 70 (38.0)	(N=2,111) 575 (27.2)	(N=400) 128 (32.0)	(N=6,325) 1,314 (20.8)	<0.001
2-year MAKE, n (%)	70 (38.0)	575 (27.2)	128 (32.0)	1,314 (20.8)	<0.001

Figure 1 Kaplan-Meier curve of survival



Results

Of 12,718 patients from the entire database, a total of 9,795 patients were included in the analysis. Twenty-six percent of the patients had evidence of CKD prior to hospitalization. AKI was detected in 8.8% of hospitalization. Hospital mortality of each groups were between 2.1% to 40.9%. Two-year mortality of AKI on CKD patients was 38.0% compared to 27.2% of those CKD patients without AKI (P=0.002). While, 2-year mortality was 32.0% in patients with AKI alone and 20.8% for patients without any CKD or AKI (P<0.001). In patients without CKD, those with AKI had more newonset CKD at two years than those without AKI (13% vs 8% respectively, P<0.001). In CKD patients, 2-year CKD progression occurs more frequently in patients with AKI

Conclusion

Patients with AKI, especially those with CKD, are at higher risk of adverse long-term clinical consequences. However, further multicenter prospective study is suggested to improve the understanding of long-term outcomes of AKI to/on CKD patients.

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(29.1% vs 18.2%, P=0.007).

