

# Afebrile chronic hemodialysis(CHD) adult patients with bacteremia are associated with higher in-hospital mortality



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## Introduction and objectives

- Infection : 2<sup>nd</sup> cause of mortality in CHD patients
- Questions concerning fever's risk-benefit : controversy
- Systemic response in septic patients include fever and mortality increased linearly with each additional systemic inflammatory syndrome (SIRS) criterion in ICU patients
- Relation between low BT and adverse outcome was observed in pneumonia or peritonitis
- Paucity of data : fever as a prognostic indicator in CHD patients with bacteremia

## PURPOSE

- The purpose of the study is to compare in-hospital mortality between febrile and afebrile CHD patients with bacteremia

## METHODS

- Retrospective study during 2006~2014
- Immunosuppressive or anti-cancer drugs or in whom blood culture was performed after 24 hours after admission were excluded
- Fever : oral BT>37.7°C or tympanic BT>37.5°C
- The laboratory data were considered only for the day and vital signs at the time of positive blood culture was taken
- 190 bacteremic events were noted in 161 CHD patients. The 162 events in 133 patients who had fever were classified as febrile group and the other 28 events in 28 patients as afebrile group

## RESULTS and Conclusions

Table 1. Baseline characteristics

	Febrile N= 162	Afebrile N= 28	p Value
Age, mean (y)	63.8±11.9	70.4±10.6	0.007
Male gender, n (%)	95 (58.6)	14 (50.0)	0.393
BMI	22.1±3.4	22.5±5.1	0.654
Duration of dialysis (y)	4.0 (0.5~49.0)	3.7 (0.6~12.5)	0.220

- No between-group differences in gender, BMI, cause of ESRD, duration of CHD, co-morbidity and usual medications
- Mean age and history of stroke (P=0.04) was higher in the afebrile group

Table 2. Clinical and microbiological characteristics

	Febrile N= 162	Afebrile N= 28	p Value
Interval between admission and blood culture (hour)	1 (1~20)	3 (3~24)	<0.001
Growing time (hour)	13.0 (4.6~52.1)	13.4 (7.8~21.1)	0.924
Laboratory findings			
CRP (mg/dL)	12.6 (0.1~52.1)	19.6 (0.9~44.3)	0.136
Procalcitonin (ng/ml)	4.8 (0.1~200.0)	1.9 (0.5~48.3)	0.703
WBC count (x1,000/uL)	11.4±6.7	11.1±7.1	0.824
Cr (mg/dl)	6.97±3.02	5.85±2.47	0.065
eGFR (ml/min/1.73m <sup>2</sup> )	8.8±4.5	10.5±4.8	0.078
Albumin (g/dL)	2.82±0.67	2.49±0.71	0.021

- Reason for admission and reason for blood culture were different between the two groups
- Fever was the main reason for admission (67.9%) and blood culture (79.0%) in the febrile group
- Source of infection, kind of bacteria, kind of antibiotic resistant strain and growing time: no between-group differences

Table 3. Severity parameters and outcome

	Febrile N= 162	Afebrile N= 28	p Value
Number of SIRS criteria (excluding BT criteria)			0.440
0 SIRS criteria, n (%)	21 (13.0)	6 (21.4)	
1 SIRS criteria, n (%)	73 (45.1)	11 (39.3)	
2 SIRS criteria, n (%)	54 (33.3)	7 (25.0)	
3 SIRS criteria, n (%)	14 (8.6)	4 (14.3)	
Average number of SIRS criteria	1.38±0.82	1.32±0.98	0.750
Severity (at the time of blood culture)			
SOFA score	7.81±3.94	8.43±3.68	0.514
APACHE II score	18.8±4.2	19.2±5.4	0.726
Mechanical ventilation, n (%)	8 (4.9)	3 (10.7)	0.227
Severe sepsis, n(%)	15(9.3)	2(7.1)	0.717
Septic shock, n (%)	17(10.5)	2(7.1)	0.585
Outcomes			
ICU length of stay (d)	0 (0~109)	0 (0~44)	0.152
In-hospital length of stay (d)	14 (2~181)	19 (1~64)	0.188
In-hospital mortality, n (%)	10 (6.2)	12 (42.9)	<0.001

- Severity were not different
- In-hospital mortality was higher in the afebrile group compared with the febrile group (42.9% vs 6.2%, P<0.001)

### Conclusion

1. Afebrile CHD patients with bacteremia : higher in-hospital mortality
2. Higher age and lower serum albumin: decreased immunity is associated with higher mortality
3. Longer interval between admission and blood culture : delayed diagnosis is associated with higher mortality in the afebrile group.

## Reference/ Bibliography

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