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Ambulatory Blood Pressure in Hemodialysis Patients

Nopparat Maeboonruen, Pooncharat Puttaisong, Nanta Mahatanan, Paweena Susantitaphong, Pisut Katavetin, Khajohn Tiranathanagul

Division of Nephrology, Department of Medicine, King Chulalongkorn Memorial Hospital, Bangkok, Thailand

Background

- In hemodialysis patients, Ambulatory Blood Pressure (ABP) would provide more comprehensive information about blood pressure than in-center blood pressure measurement during hemodialysis and home manual blood pressure measurements.

Objects

- To describe result of ABP and its relation to left ventricular hypertrophy (LVH) and overhydration in hemodialysis patients.

Methods

- Chronic hemodialysis patients were invited to get ABP monitoring for 48 hours.



Post HD

ABPM 24 hr

Off

Table 1 Blood pressure classification according to ABP

Blood pressure classification	Systolic ABP (mmHg)	Diastolic ABP (mmHg)
Normal	<115	<75
Elevated blood pressure	115-125	<75
Mild Hypertension	125-129	75-79
Moderate Hypertension	130-144	80-89
Severe Hypertension	≥145	≥90

Table 2 Dipping pattern classified by difference in systolic blood pressure (SBP)

Dipping pattern	Nighttime dipping (%)
Extreme dipper	≥20
Dipper	10 to 20
Non-dipper	0 to 10
Riser	<0

- LVH was diagnose by electrocardiography and/or echocardiography
- Overhydration was determined using bioimpedance spectroscopy (Body Composition Monitor-Fresenius Medical Care)

Results

- 12 chronic hemodialysis patients participated
- Male: Female = 5: 7
- Age 68.3±15.1

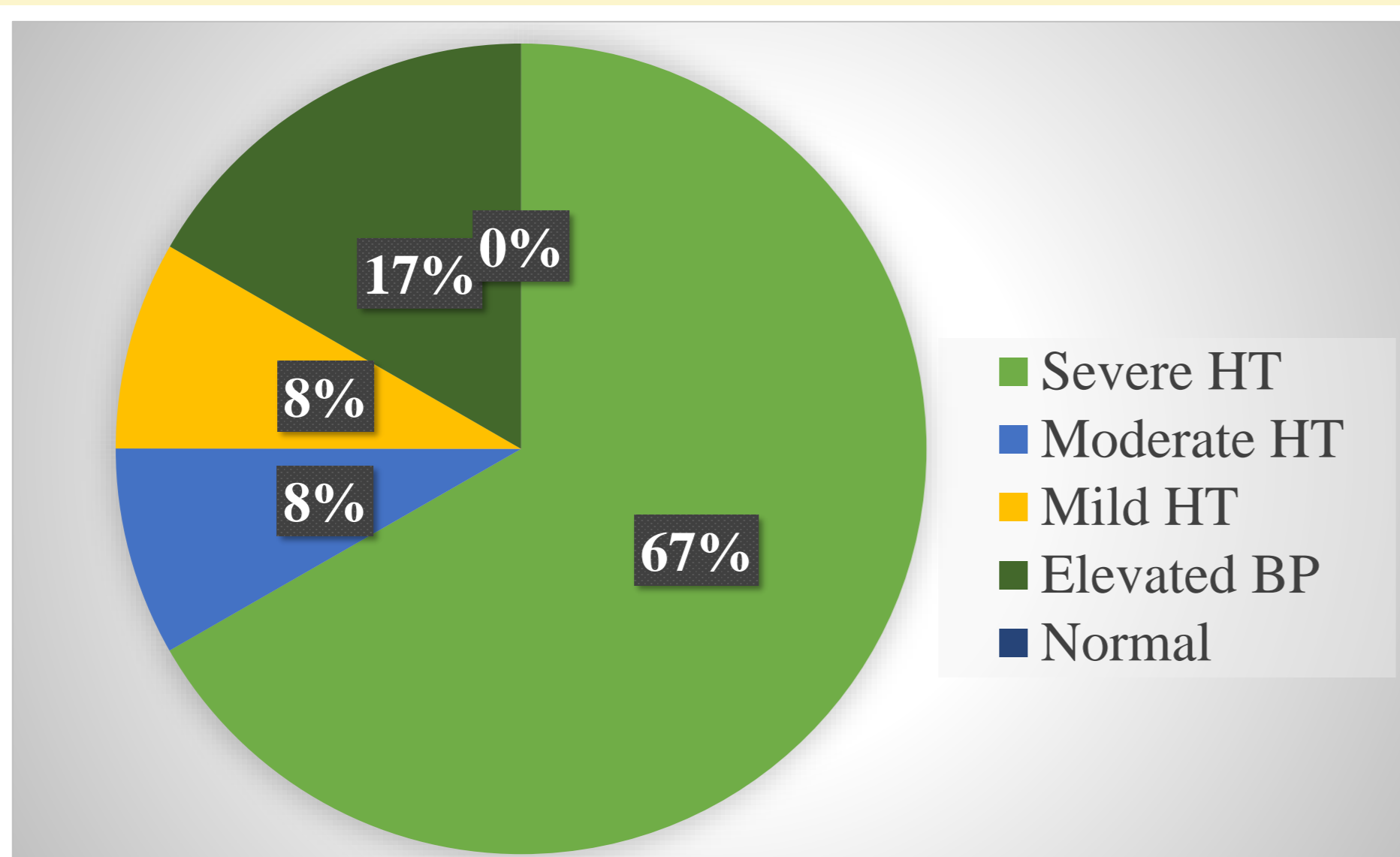


Figure 1 Blood pressure classification by ABP and dipping pattern in all patients

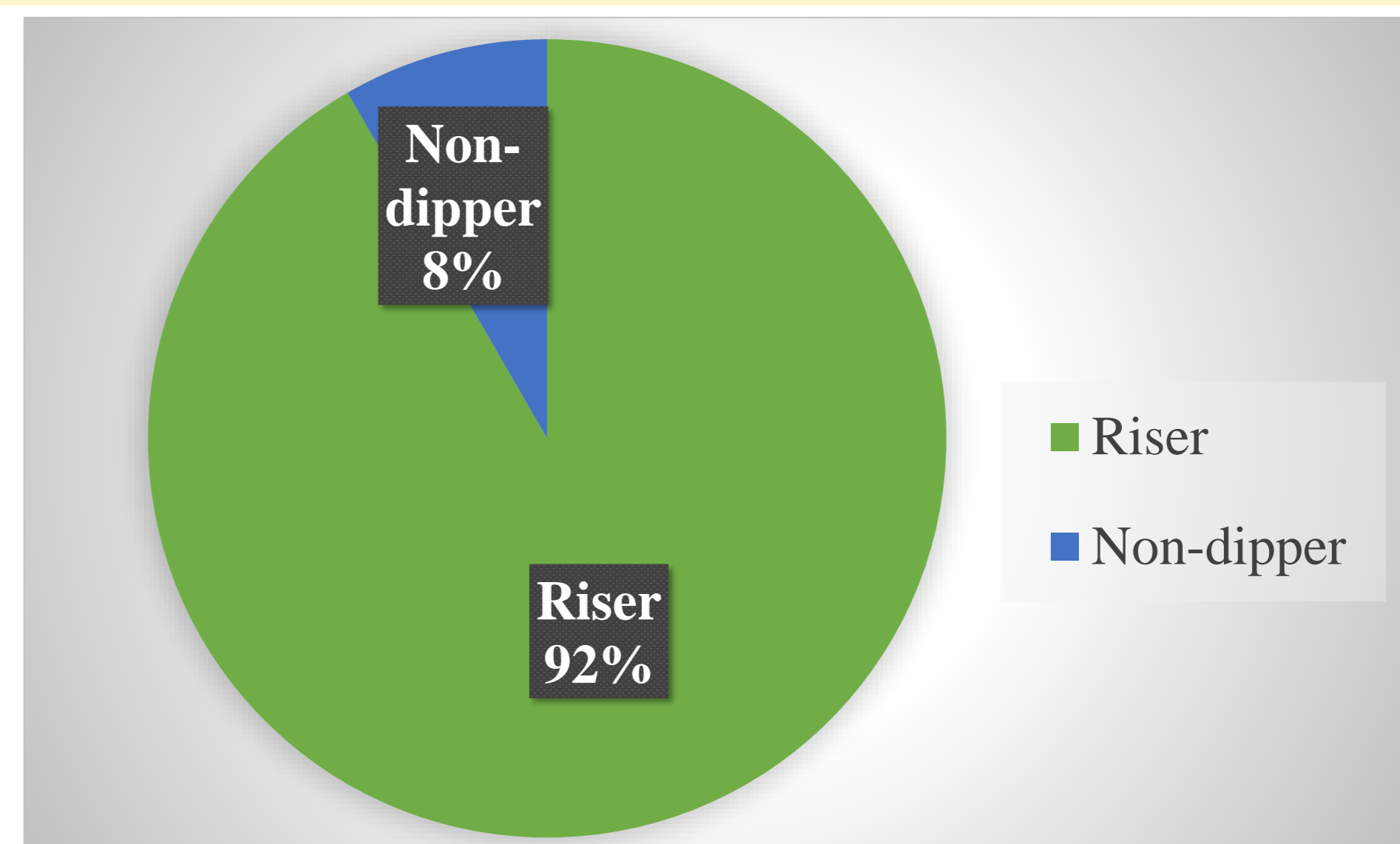


Figure 2 Dipping pattern in all patients

Table 3 Blood pressure classification by ABP in all patients, in patients with LVH and in patients with overhydration

Blood pressure classification	All (n=12)	LVH (n=10)	Overhydration (n=7)
Normal	0	0	0
Elevated blood pressure	2	1	2
Mild Hypertension	1	1	0
Moderate Hypertension	1	1	0
Severe Hypertension	8	7	5

Table 4 Dipping pattern in all patients, in patients with LVH and in patients with overhydration

Dipping pattern	All (n=12)	LVH (n=10)	Overhydration (n=7)
Extreme dipper (>20%)	0	0	0
Dipper (10-20%), Non-dipper (0-10%)	0	0	0
Riser (<0, nighttime increase)	11	10	6

Table 5 Dipping pattern and blood pressure classification

Blood pressure classification	Non-dipper (n=1)	Riser (n=11)
Normal	0	0
Elevated blood pressure	1	1
Mild Hypertension	0	1
Moderate Hypertension	0	1
Severe Hypertension	0	8

Conclusions

- Most hemodialysis patients are “riser” which is likely to be unidentified without ABP monitoring. Therefore, routine ABP monitoring in hemodialysis patients should be considered