

HOME BLOOD PRESSURE IN KIDNEY TRANSPLANT RECIPIENTS (Ktr) -VALIDITY OF DIFFERENT SCHEDULES OF SELF-MONITORING-

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OBJECTIVE

Office blood pressure (OBP) coupled with 24-h ambulatory monitoring (24-h ABPM) or home self-monitoring (HBPM) allow a more accurate assessment of BP control in treated hypertensive patients and identification of different phenotypes of BP. ESH/ESC guidelines (2013) recommended 7 days of home measurements (3 days at least) but that duration is questioned.

The present study examined if we can reduce, and to what extent, the 7-days schedule for home measurements in treated hypertensive kidney transplant recipients (ktr) while keeping a reliable assessment of their BP status?

DESIGN and METHOD

BP control defined by OBP <140/90 and daytime ABPM or HBP <135/85 mmHg was assessed in 70 hypertensive Ktr treated with antihypertensive drugs (tab. 1). ABPM was measured each 20 minutes the day and each 30 minutes the night with a Spacelabs 90207. Home BP was measured 2 times in the morning and 2 times in the evening during 7 days with an Omron M6, mean HBP being calculated after discarding the 1st day. Ambulatory techniques were performed consecutively and started the day after the clinical visit when OBP was measured. Agreement between daytime ABPM and HBPM was studied for decreasing number of days of HBP measurements (from 7 to 2 days).

RESULTS

Uncontrolled blood pressure

Based on OBP, 50 % of ktr were uncontrolled, based respectively on daytime ABP and HBP (7 days), 61 and 64 % remained hypertensive despite treatment (Fig.1).

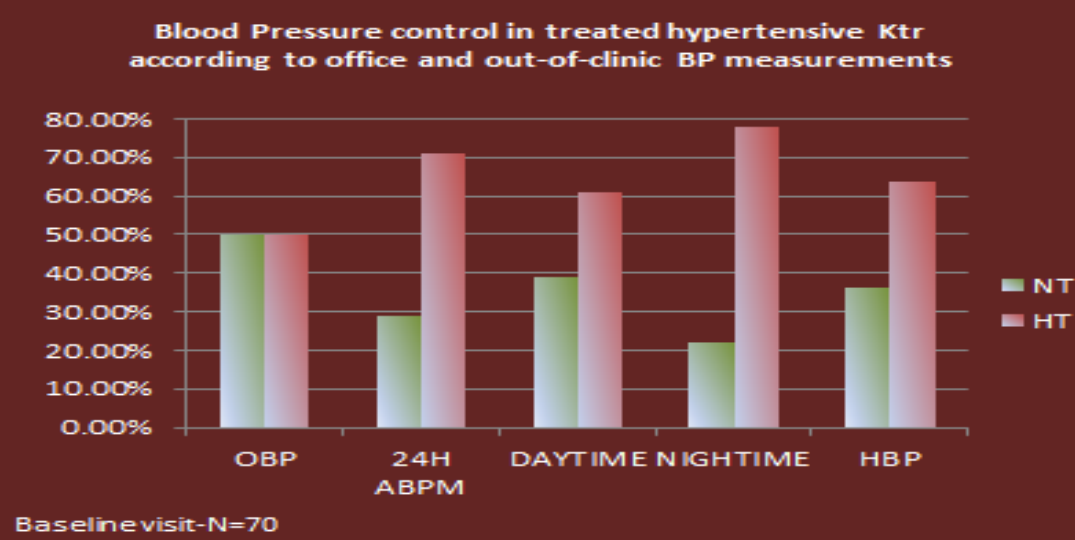
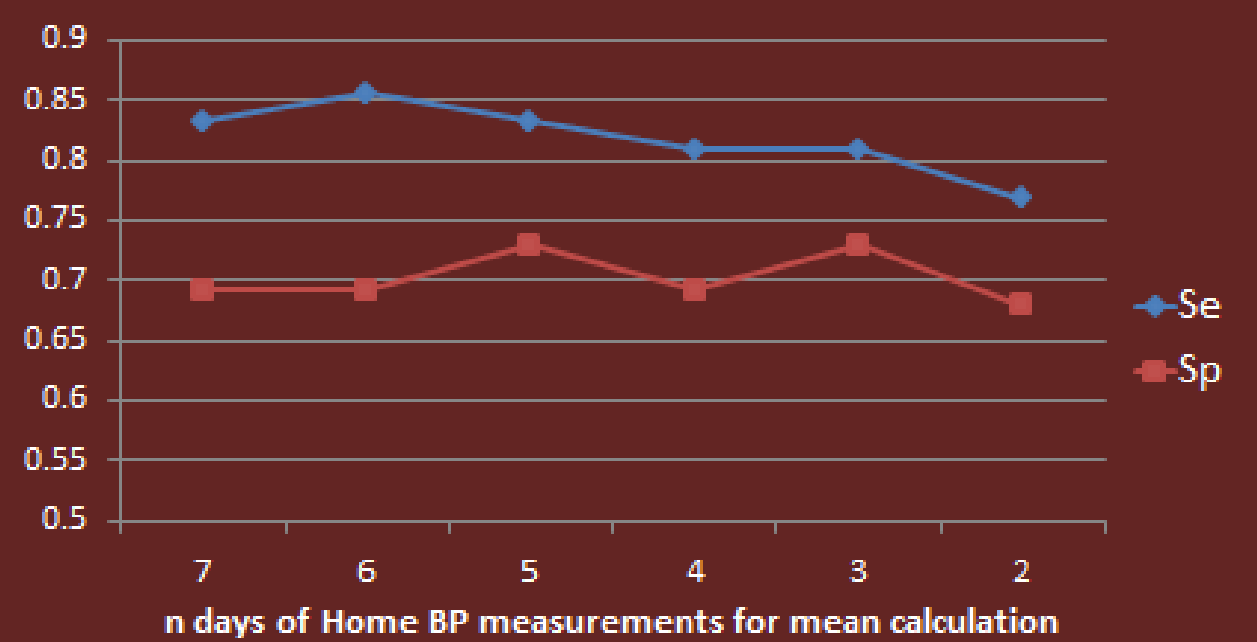


Figure 1

Home Blood Pressure - Sensitivity and Specificity of different schedules

Sensitivity (Se) testing agreement between daytime ABP and HBP to detect controlled and uncontrolled recipients, decreased progressively when number of days of self-monitoring was shortened from 7 to 2 days. The highest Se (86 %) was observed for a 7 days duration with 1st day discarded for mean calculation. Specificity (Sp) fluctuated around 70 % without showing any decreasing trend in parallel with decreasing number of days (Fig. 2).

Figure 2: .Controlled and uncontrolled ktr- Sensitivity and Specificity for various schedules of Home BP measurements



Reference: daytime ABP

Phenotypes of blood pressure

1. Normal BP in office settings

When BP is normal in office, ambulatory BP can confirm normotension or identify masked hypertension. Among 35 ktr with office controlled BP, normotension was confirmed by daytime ABP in 54 % and by HBP in 56 %. Masked HT was identified in 46 and 44 % respectively by daytime and HBP (Fig.3).

On the right part of the Fig.3, the highest rate of agreement on normotension between ambulatory techniques was observed for 79 % of patients when mean HBP was calculated either on 6 or on 5 days, it fluctuated when number of days of HBP measurements decreased. Agreement on masked HT remained constant (69 %) between 7 and 4 days of HBP measurements and was slightly higher for the shortest periods.

2. Hypertension in office settings

For those patients with office uncontrolled BP, daytime ABP confirmed hypertension in 76 % and HBP in 83 %. White Coat Hypertension (WCH) was identified in 24 % of patients with daytime ABP and 17 % with HBP (Fig.4).

On the right part of the Fig. 4, the highest rate of agreement on hypertension between ambulatory techniques (96 %) was observed when mean HBP was calculated on 6 days then it decreased progressively when periods of measurements were shortened.

The rate of agreement for WCH remained constant all over the different tested periods (50 %).

Agreement between ambulatory BP phenotypes (DAY ABP/HBP) according to the Office BP level

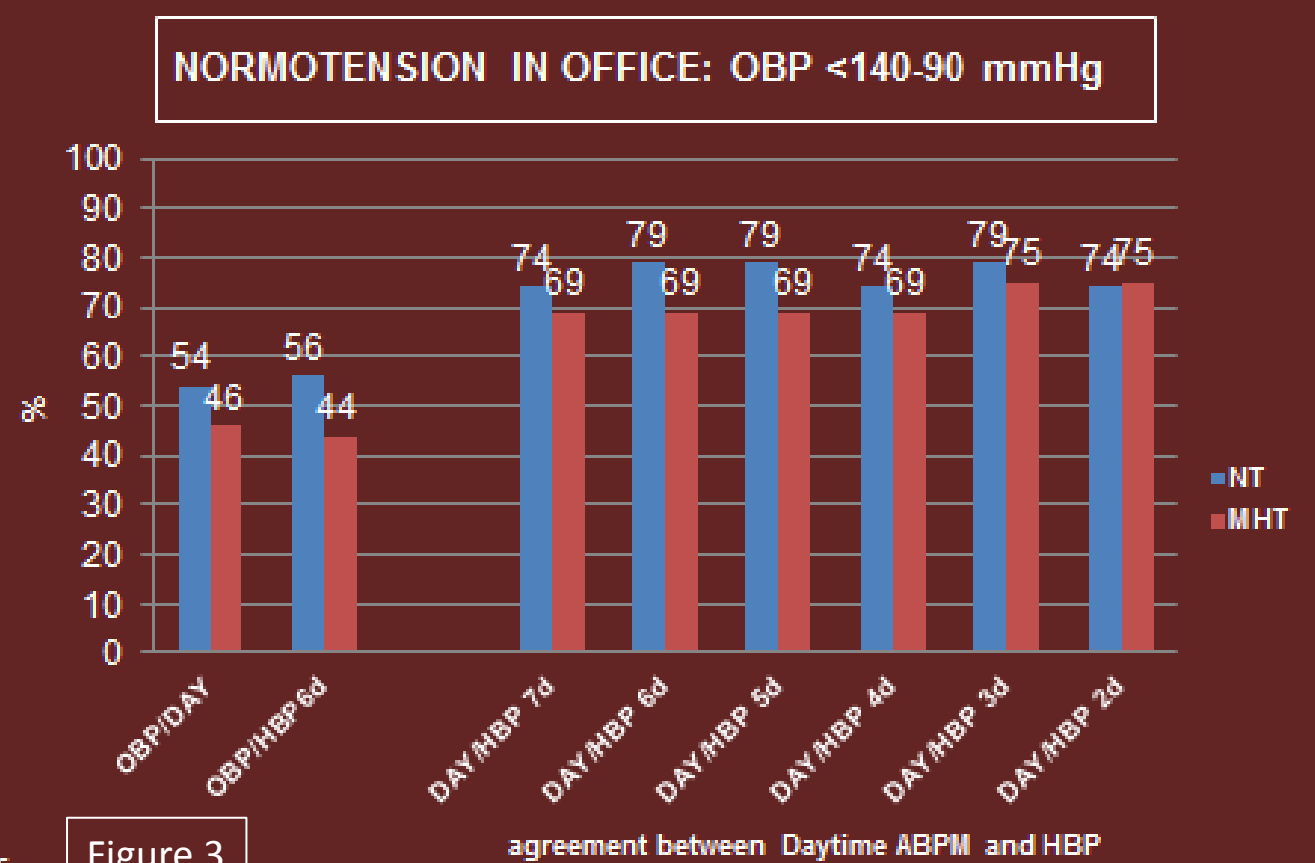


Figure 3

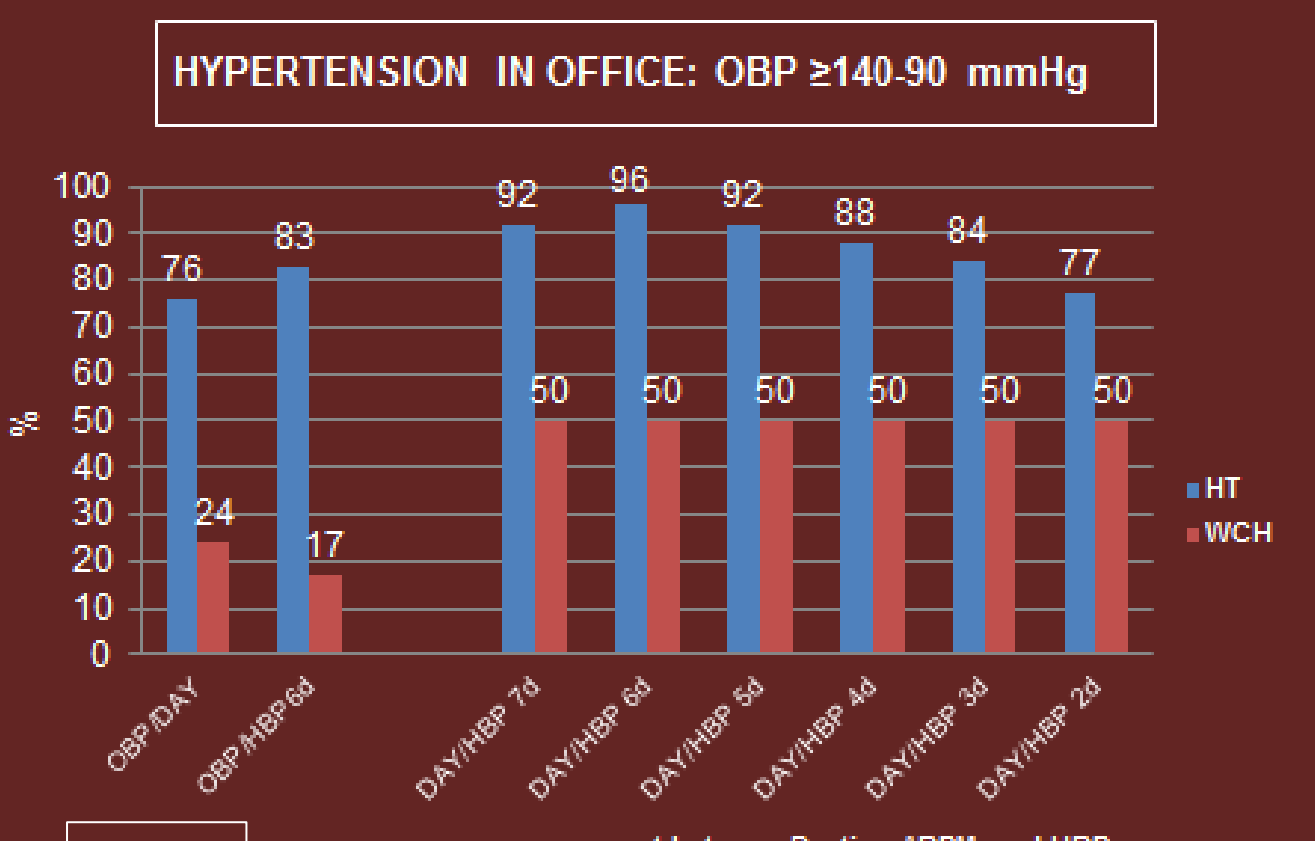


Figure 4

CONCLUSIONS

Home blood pressure measurement is an easier and less restricting method than 24-h ambulatory monitoring. Compared to daytime BP, it was a good alternative to ABPM since nearly 80 % of controlled ktr and 96 % of uncontrolled ktr (OBP/DAY ABP) were similarly classified by both methods when HBP was performed during 7 days and mean calculated after discarding the 1st day. However, the rates for MHT and WCH were lower.

HBPM schedule could be shortened to 5 days but a 3 days one seems more risky reducing the chance to identify masked HT due to decreased drug adherence at home.

Discarding the 1st day of HBP affected moderately mean HBP except for the 3 days schedule.

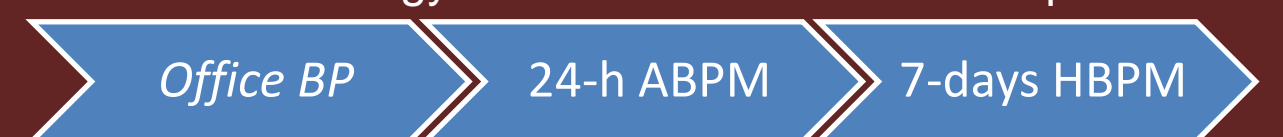
Blood pressure: limits and procedures

OFFICE BP	<140-90	Omron M6	3 meas. at least
Daytime ABP	<135-85	Spacelabs 90207	Awake period (patient's self-report)
HOME BP	<135-85	Omron M6	7 days-1st discarded (2x morning/2x evening/day)

HBPM schedules tested

7 days	6 days	5 days	4 days	3 days	2 days
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Chronology of BP measurement techniques



	Mean ± sd	min-max
N	70	
Men/women (N)	43/27	
Age (years)	56 ± 11.5	33-76
Graft survival (years)	7.0 ± 6.6	1-25
Hemodialysis vintage (y)	2.7 ± 3.7	1 m -7.9 y
GFR (ml/min)	65.6 ± 24	26-133
BMI (kg/m ²)	25.8 ± 4.7	16-37
BMI ≥30	(21%)	
Diabetes (N.%)	19 (27)	
Current smokers (N.%)	9 (13)	
Office SBP (mmHg)	136 ± 14	107-175
Office DBP (mmHg)	83 ± 12	50-108
N antihypertensive drugs	2 ± 1	1-5

Table 1: General characteristics