

Blood pressure dipping and arterial stiffness in kidney transplant recipients

Patricia Xhignesse, Annie Saint-Remy, Catherine Bonvoisin, Laurent Weekers, Bernard Dubois and Jean-Marie Krzesinski
Nephrology-Transplantation-Hypertension- CHU Liège

Objective

Absence or reduced blood pressure (BP) fall during sleep (nondipping) has been associated with a higher risk of kidney disease. Is this particular BP pattern associated with arterial stiffness in kidney transplant recipients (KTs) ?

Design and method

Ambulatory blood pressure monitoring (ABPM-Spacelab 90207) was used in 70 hypertensive late Kts, mean age: 56.5 years; graft vintage 6.9±6.6 years, eGFR 65.6±24±ml/min. Simultaneously, were measured carotid-femoral pulse wave velocity (PWV) (Sphygmocor), calcification score (abdominal Xray) and ambulatory arterial stiffness index (AASI).

Dipping was defined as a decline in the nocturnal BP of >10%, nondipping as a decline in the nocturnal BP of <10% but >0%, and reversed dipping as a decline in the nocturnal BP of <0%. AASI was defined as $1-\beta$ (β = slope of regression of DBP on SBP) derived from the 24h ABPM.

Results

We noted 23% dippers, 48% nondippers and 29% reversed dippers. The latter were significantly older. However, neither BMI, diabetes nor haemodialysis vintage, graft survival, eGFR, daily dose of prednisolone, number of antihypertensive drugs did allow to distinct the three groups.

PWV did not differ between the groups. However, calcification score and AASI were the highest in the reverse pattern group. Moreover these two parameters were also higher when nondippers were compared to dippers (table)

	Dippers (16)	Nondippers (33)	Reversed (20)
PWV (m/s)	8.4 ±1.3	9.2 ± 2.9	9.0 ± 2.6
Calcification score	2.6 ± 4.5	5.3 ± 5.9	9.0 ± 6.4 ^a
AASI	0.30 ± 0.14	0.39 ± 0.16	0.55 ± 0.11 ^b

a:P=0.043 vs nondippers; P=0.003 vs dippers

b:P=0.001 vs nondippers ; P<0.0001 vs dippers

Conclusion

Nondipping is frequent among KT's, associated with arterial stiffness indices such as arterial calcification and AASI, but not PWV. Longitudinal studies are needed to test the relationship between these parameters and graft survival.