

Blood Pressure Monitoring

2.1 Blood Pressure Fall Overestimates the Association with the Vascular Damage, if not Adjusted for the Real Sleep Time

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Introduction. Many studies showed that a reduced nocturnal blood pressure (%) fall (DIP) is associate to the vascular damage in hypertensive patients.

Aim. To recognize if this association was confirmed when the 'real sleep time' was determined.

Methods. We studied 22 normotensive (NTN:124± 1/7 7±2), 20 hypertensive (HTN:151± 4/91±2) with lower (Limt) and 21 (HTN:14 9±3/91± 2) with higher (Himt) carotid intima-media thickness (mm), untreated males. By ambulatory blood pressure monitoring and simultaneous actigraphy the standard (STD = SBP 07:00-23:00 and 23:00-07:00) and tailored, personalized, DIP (PER = 'real awake-real sleep time'), identifiable through the fall of the muscular tone and the sleep duration (min) of the 'real sleep' (SLEEP). By video capillaroscopy of standardized areas of periungueal, phalangeal and forearm skin of the non-dominant arm, the basal capillarity (CAP) was calculated. By venous congestion, capillarity was maximized (CVC) and the secondary capillary recruitment (GAIN), as functional and structural indices of microcirculatory damage, were obtained.

Results. Significant differences were found (m±s.e.: *p<0.05, **p<0.01, ***p<0.001 vs NTN, ^p<0.05, ^^p<0.01, ^^p<0.001 vs HTN-Himt) [see table]. Pearson analyses, adjusted for age, SBP/DBP and smoke, showed that IMT and DIPSTD (-0.344***) and SLEEP (-0.267**), but not DIPPER (-0.146, n.s.), but also SEDENT and CAP (-0.299**), were significantly associated.

pts/var	DIPSTD	DIPPER	SLEEP	IMT	CAP	CV	GAIN
NTN	16.1±1.5	16.4± 1.5	371±19	0.7±0.02	40.1±1.2	48.8±1.3	8.8±0.7
HTN-Limt	18.2± 1.1	19.2±1.2	382± 36	0.7±0.03	36.9±0.9*	44.1±0.9**	7.3±0.5
HTN-Himt	8.25±0.9***^^^	14.8±1.4^^	273± 34**^	1.24± 1.1*	33.1±0.8***^^	39.6± 0.6***^^	7.3±0.4

Conclusions. Our analysis shows that the reduced sleep time may induce an overestimation of the association between nocturnal blood pressure fall, measured by standard time, and vascular damage in hypertensive patients, regardless their structural capillary rarefaction.