

Does nocturnal decrease of blood pressure predict left ventricular hypertrophy?

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Objective: Twenty-four hours BP rhythm is characterized by a nocturnal decrease of 10% or more of the night-time BP compared to the daytime level. Patients with an absence or blunted nocturnal fall, called non-dippers, could be at higher risk of cardiovascular complications. Left ventricular hypertrophy (LVH) is a major repercussion of hypertension and has been described as more frequent in non-dippers. The present study examines the relation between the amplitude of the BP dipping and echographic parameters such as left ventricular mass (LVM), posterior wall (PW) and interventricular septum (IS) thickness.

Methods: Office BP and 24 hours ABPM (Spacelabs 90207) have been performed on 83 unselected patients (55 men, 28 women) mean age: 53 ± 17 . Day-night differences are expressed in percentage. All patients have been submitted to a cardiac echography and LVH has been determined according to the LVM index and the thickness of PW and IS.

Results: For the whole sample, no relation is observed between the dipping and the LVM index, PW and IS thicknesses except a negative correlation ($r = 0.22$) between the dipping of DBP and the PW ($p = 0.05$).

1) When the sample is divided according to the absence or presence of a LVH, we observed in the LVH group, a higher proportion of non dippers [65 % (24/37) vs 52 % (24/46)], a higher proportion of hypertensive patients [51 % (19/37) vs 39 % (18/46)] and less patients under antihypertensive drugs [22 % (8/37) vs 37 % (17/46)]. Nevertheless these differences do not reach statistical significance. No differences were observed between the 24 hours ABPM parameters. Inside these 2 groups we did not observe any significant relation between the LVM index and the amplitude of the dipping but only a negative correlation ($r = 0.42$; $p < 0.01$) between the dipping of SBP and the PW in the patients with LVH.

2) In a second time, dividing the sample according to the dippers and non dippers did not bring neither significant result between the LVM index and the dipping nor when comparing LVM index.

Conclusions: Our results do not outline any relation between the LVM index and the amplitude of the nocturnal fall of BP. Only negative and significant correlation is observed between the PW thickness and the dipping in patients suffering from LVH. So day-night BP differences do not seem, in a cross-sectional study, to predict target organ damage such as LVH.

Circadian rhythm and seasonal variation

Prognostic factors

Time factors

Ventricular hypertrophy: diagnosis

Ventricular mass