



Nutrition Society Congress 2024, 2–5 July 2024

Prevalence of non-dipping amongst adults with normal clinic blood pressure

C.A Goland¹, P.M Heavey¹ and G.J Cuskelly¹

¹*SHE (Sport, Health and Exercise) Research Group, Department of Sport and Health Sciences, Technological University of the Shannon, Athlone, Ireland*

Hypertension is the leading risk factor for cardiovascular disease (CVD), responsible for approximately 12.8% of global deaths⁽¹⁾. Twenty-four hour ambulatory blood pressure monitoring (ABPM) is effective in detecting, confirming, and monitoring hypertension⁽²⁾. In comparison to seated clinic blood pressure (CBP), ABPM assesses overall blood pressure (BP) variability across 24 hours, identifying specific additional components such as nocturnal hypertension and altered daytime to night-time BP profiles (i.e. non-dipping pattern of BP). Furthermore, a non-dipping BP profile is an independent risk factor for CVD⁽³⁾⁽⁴⁾. This study aimed to measure the prevalence of non-dipping in apparently healthy males and females aged >50 years.

After approval by TUS Research Ethics Committee, 100 participants not on antihypertensive medication were recruited from various workplace locations in Athlone, Ireland. ABPM was measured using a Welch Allyn 7100 ABPM and CBP was measured using an Omron M3 BP monitor. CBP was measured on the day immediately after the ABPM was performed (same arm for both measurements). Standard protocols for ABPM were employed using the NICE Guidelines⁽⁵⁾. Awake and asleep BP levels were computed as the mean of all readings during each period. Night time was determined according to patient reported sleep period. Nocturnal hypertension was defined as an asleep SBP/DBP $\geq 120/70$ mmHg and non-dipping was defined as a decline in SBP from wakefulness to sleep of <10%.

Of 92 participants recruited, 85 completed both ABPM and CBP measurements of which n = 30 male. Participants were stratified into BP categories according to the International Society of Hypertension (ISH) reference ranges for CBP⁽⁶⁾. BP category was defined according to seated CBP and by the highest level of BP, whether systolic or diastolic⁽⁶⁾. Hypertensive BP groups (grades 1 and 2) were merged into one group and renamed as “hypertensive”

Thirty-seven participants had normal CBP (43.5%), 24 had high normal CBP (28.2%), and 24 were classified as hypertensive (28.2%) of which 16 (43.2%), 2 (8.3%) and 9 (37.5%) were non-dippers, respectively. Data analysis shows a significantly higher proportion of non-dippers than dippers in the normal CBP group (Chi square, $p = 0.024$) when compared to the higher CBP groups.

There is a high prevalence of non-dipping amongst adults with normal CBP. Therefore, CBP and ABPM classify adults differently with regard to BP status. Our results show the importance of using a combination of both CBP and ABPM to comprehensively determine BP status in adults over 50 years.

References

1. WHO (2023). Global report on hypertension.
2. Mancia G, Verdecchia P. (2015) *Circ Res* **116**(6), 1034–45.
3. Salles GF, Reboldi G, Fagard RH *et al.* (2016) *Hypertension* **67**(4), 693–700.
4. NICE (UK). Hypertension: The Clinical Management of Primary Hypertension in Adults [Available from:<http://www.ncbi.nlm.nih.gov/books/NBK83274>].
5. Unger T, Borghi C, Charchar F *et al.* (2020) *Hypertension* **75**(6), 1334–57.