

# Factors Affecting Continued Nocturnal Non-Dipping in Blood Pressure in a PTSD Remitted Population

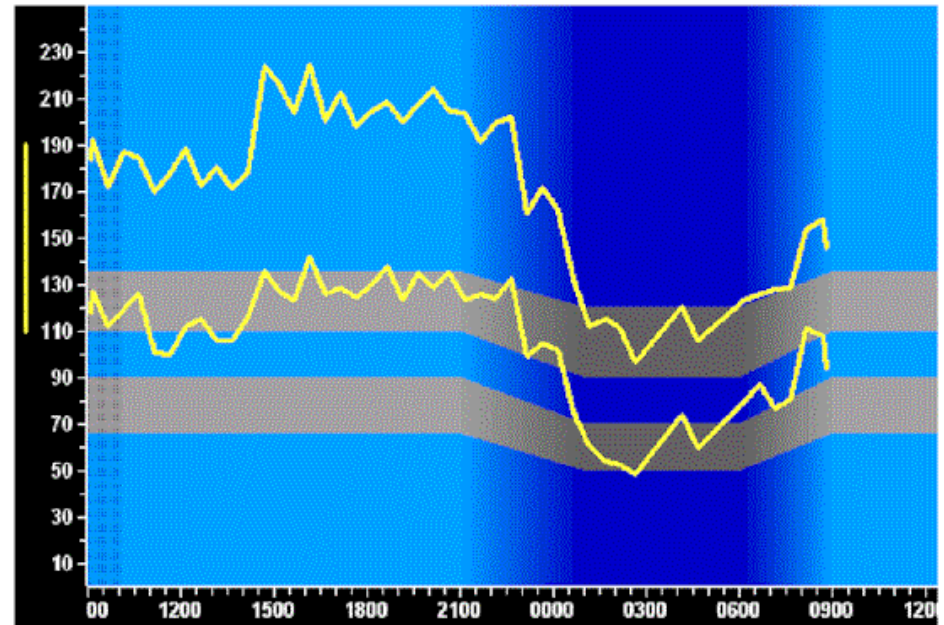
Sonia Taneja<sup>1</sup>, T. Mellman, MD<sup>2</sup>

<sup>1</sup>University of Virginia, Charlottesville, VA 22903

<sup>2</sup>Department of Psychiatry, Howard University, Washington, DC, 20059

# Background

- Normal “dip” in blood pressure is at least 10%<sup>1</sup>
- Absence of the dip in blood pressure is an established risk factor of hypertension and end-organ complications<sup>2</sup>



<http://www.abdn.ac.uk/medical/bhs/images/booklet/noctdip.gif>

# Background (continued)

- Strong correlation between symptoms of posttraumatic stress disorder (PTSD) and non-dipping of nocturnal blood pressure<sup>3</sup>
- Interestingly, sustained non-dipping found even in the lifetime, or PTSD remitted group
- Cardiovascular risk factors hypothesized to contribute to “non-dipping”
  - Being overweight<sup>4</sup>
  - Living a sedentary lifestyle<sup>5</sup>
  - PTSD Hyperarousal symptoms<sup>6</sup>
  - Negative emotional responses to stressors (racism)<sup>7</sup>

# Objective

- To evaluate factors contributing to continued nocturnal non-dipping in blood pressure in PTSD remitted participants.



# Methods

- 30 healthy volunteers
- Between ages of 18 and 35, predominantly African-American
- 40% Males, 60% Females



# Methods (continued)



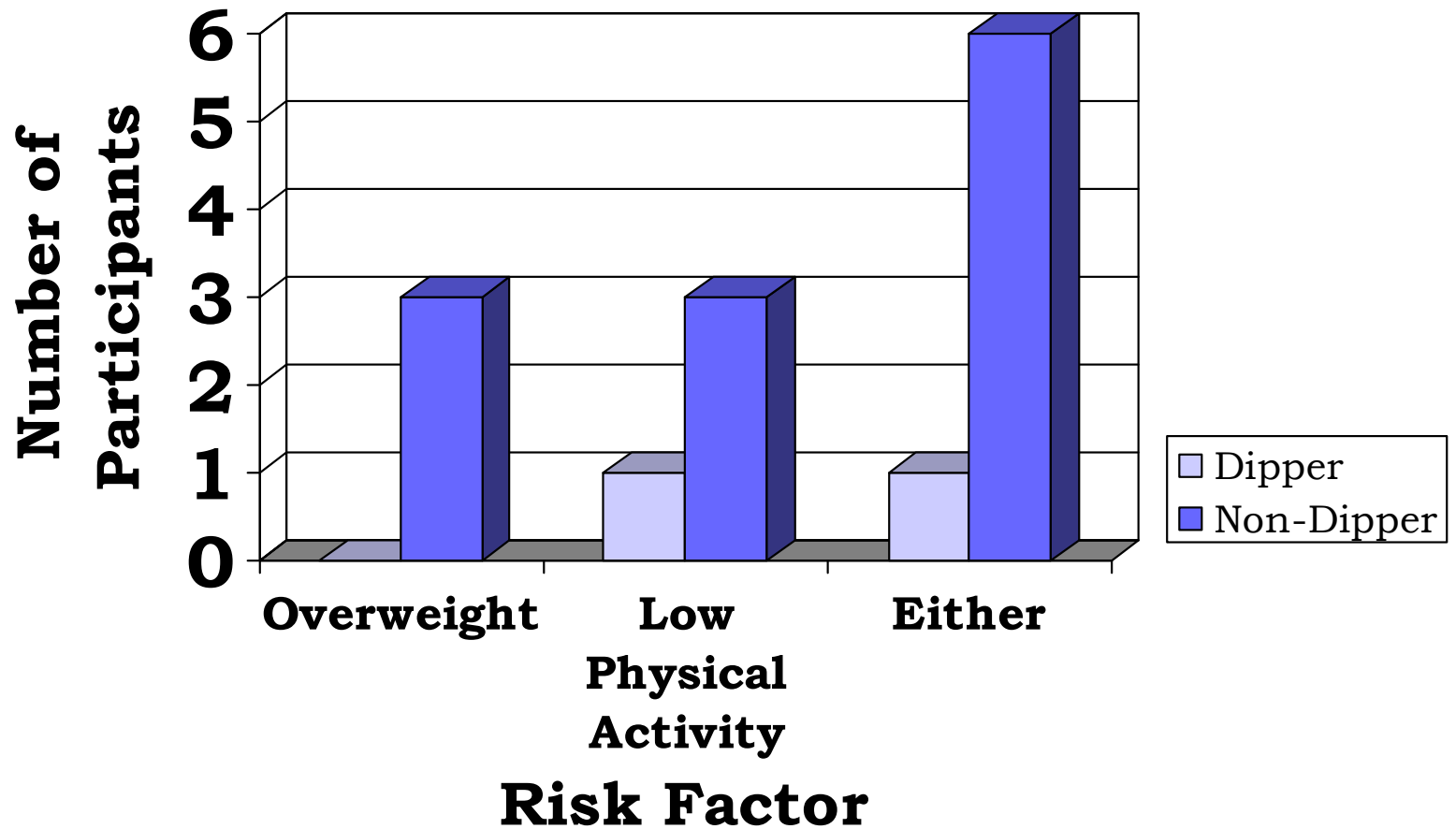
- Surveys administered
  - Demographics Questionnaire
  - Clinical Assessed PTSD Scale (CAPS)
  - The International Physical Activity Questionnaire
  - Responses to Perceived Racism Scale
- Tabulations of each risk factor recorded
  - Body Mass Index
  - PTSD Hyperarousal symptom score
  - Physical activity level
  - Negative emotional responses to racism

# Results



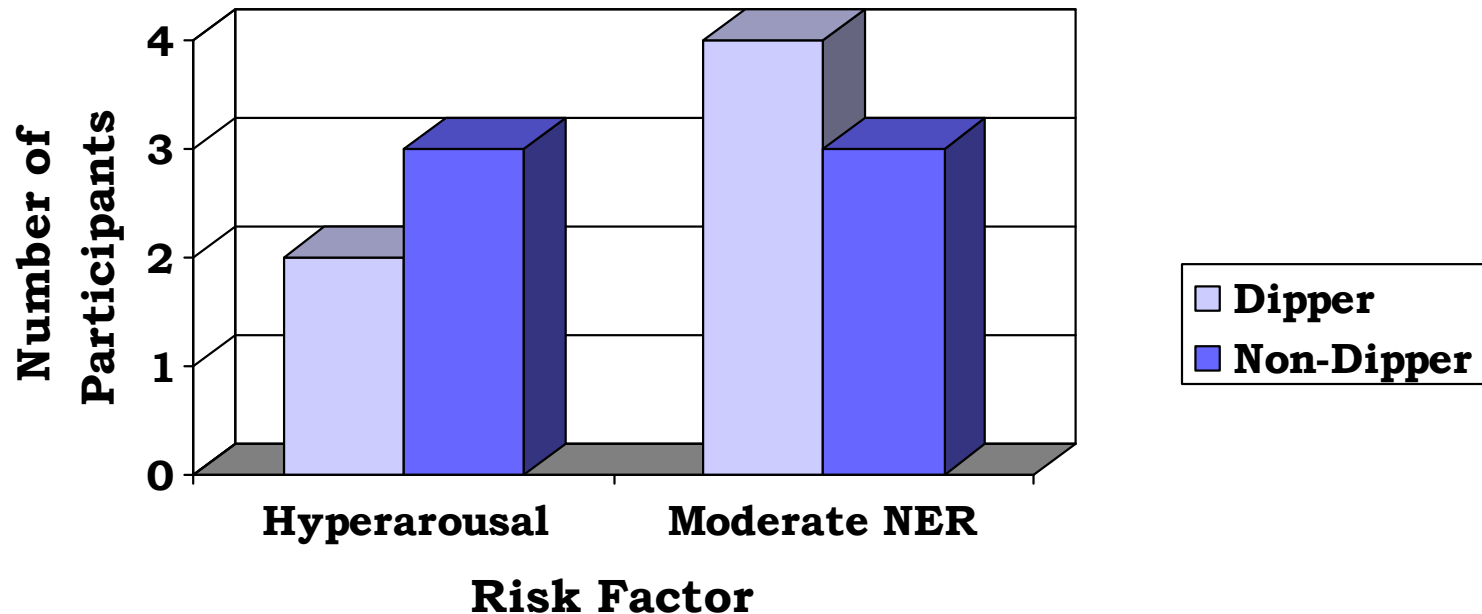
- 11 out of 30 were diagnosed as having sub-threshold or full criteria lifetime PTSD only
- 4 were dippers; 7 were non-dippers

# Cardiovascular Risk Factors



# Results (continued)

## Cardiovascular Risk Factors



- Hyperarousal scores greater than zero
- Moderate negative emotional response (NER) to stressors, such as racism
- No real relationship between either one and dipping of nocturnal nondipping.

# Discussion



- Potential relationship between being overweight or engaging in low physical activity and nocturnal non-dipping
- Preliminary data/study
  - Greater number of participants needed

# References

1. Chobanian, A, Bakris, G, Black, H, Cushman, W, Green, L, Izzo Jr, J, Jones, D, Materson, B, Oparil, S, Wright Jr, J, & Roccella E. (2003). Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. National Heart, Lung, and Blood Institute; National High Blood Pressure Education Program Coordinating Committee. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension* 42, 1206-52.
2. Hoshida S. Kario K. Hoshida Y. Umeda Y. Hashimoto T. Kunii O. Ojima T. Shimada K. Associations between nondipping of nocturnal blood pressure decrease and cardiovascular target organ damage in strictly selected community-dwelling normotensives. [Journal Article] *American Journal of Hypertension*. 16(6):434-8, 2003 Jun.
3. Mellman, Thomas. *Psychobiology of PTSD II: Nocturnal Blood Pressure and Posttraumatic Stress*. 2005-Present.
4. Kotsis V. Stabouli S. Bouldin M. Low A. Toumanidis S. Zakopoulos N. Impact of obesity on 24-hour ambulatory blood pressure and hypertension. *Hypertension*. 45(4):602-7, 2005 Apr.
5. Bermudes, A, Vassallo, D, Vasquez, E, & Lima, E. (2004). Ambulatory blood pressure monitoring in normotensive individuals undergoing two single exercise sessions: resistive exercise training and aerobic exercise training. *Arquivos Brasileiros de Cardiologia*, 82, 57-71.
6. Weathers, F, Keane, T, & Davidson, J. (2001). Clinician-administered PTSD scale: a review of the first ten years of research. *Depression and Anxiety*, 13, 132-156.
7. Steffen, P, McNeilly, M, Anderson, N, & Sherwood, A. (2003). Effects of perceived racism on ambulatory blood pressure in African Americans. *Psychosom Med*, 65, 746-750.

# Acknowledgments



Dr. Thomas A. Mellman, MD\*

Denver D. Brown\*

Paula M. Smith\*

Amgen Foundation

\*Department of Psychiatry, Howard University, Washington, DC, 20059

**Q & A**

