

Targeting Nocturnal Hypertension in T2DM: Systematic Review of Published Randomised Controlled Clinical Trials (RIGHT Study)

Friday, 27 October 2017, 17:40 18:15, Poster Group 1, Poster Number P05



Diabetes and Cardiovascular Disease
EASD Study Group



Authors

Vivek Redkar ¹, **Sagar Redkar** ², Shraddha Rane ², Supriya Redkar ², Mohan Jagtap ², Darshan Khanolkar ³, Manohar Inamdar ⁴, S V Kulkarni ⁵, Navneet Wadhwa ⁶.

Institution

1. Krishna Institute of Medical Sciences, Karad, India.
2. Redkar Hospital and Research Center, Goa, India.
3. Redkar Hospital Neuro Cardiac Center, Maharashtra, India.
4. Ashwini Hospital, Akluj- Maharashtra, India.
5. Kulkarni Nursing Home, Mumbai, India.
6. AUW Global, Mumbai, India.

Introduction

- The rising menace of both hypertension and T2DM necessitates an effective pharmacological approach for management of hypertension
- The precise approach would have to be developed to effectively target the patients for an effective BP control to have improved outcomes

Objectives

- To explore the evidence for the approach to effectively target the nocturnal component of the elevated BP through the published Randomised Controlled Clinical Trials (RCCTs)

Methods

- We searched Cochrane Library, pubmed- MEDLINE, IndMED online databases to conduct a systematic review of the published RCCTs evaluating the contemporary approach for effective intervention to target the nocturnal hypertension
- The appropriate filters and Boolean operators were utilised
- Graph pad prism 7.0 version software and t-test was utilised for statistical analysis

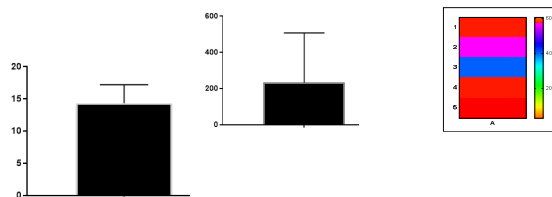
Results

- Results yielded 5 published RCCTs over last 8 years (2007 to 2014)
- Only the studies targeting the nocturnal hypertension in T2DM were included for the analysis

- Parameters analysed
 - Study design
 - Patient characteristics
 - Geography of the study,
 - Impact factor of the journals
 - Intervention
 - Duration, and
 - Outcomes by using the appropriate statistical methods

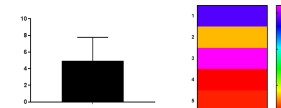
- Cumulatively, 1165 patients (mean 233 patients, SD \pm 274.7, SEM \pm 122.8, minimum 29 patients, maximum 607 patients, 95% CI - 108.1 to 574.1, $p=0.13$) have been evaluated across 5 RCCTs.

- The range of the studies varied from 11 weeks to 5.4 years
- Europe has contributed to all the available evidence with 3 studies published from Spain and one each from Denmark and UK



- Based on the impact factor of the journals (mean 4.94, minimum 2.54, maximum 8.42, SD \pm 2.84, SEM \pm 1.27, 95% CI 1.40 to 8.47; $p=0.0002$), we formulated an indexed weightage score (mean 100, minimum 51.59, maximum 170.4, SD \pm 57.66, SEM \pm 25.78, 95% CI 28.41 to 171.6)

- Based on the impact factor of the journals (mean 4.94, minimum 2.54, maximum 8.42, SD \pm 2.84, SEM \pm 1.27, 95% CI 1.40 to 8.47; $p=0.0002$), we formulated an indexed weightage score (mean 100, minimum 51.59, maximum 170.4, SD \pm 57.66, SEM \pm 25.78, 95% CI 28.41 to 171.6).



- The evidence suggests that in T2DM and nocturnal hypertension, administration of once-daily antihypertensive drugs at bedtime may be favourable
- ABPM has been utilised in 4 RCCTs and have consistently evaluated the non- dipping patterns of nocturnal hypertension in patients with T2DM.
- The night dosing of olmesartan increases nocturnal BP fall significantly more than conventional morning dosing, increasing the number of dipper diabetic hypertensive patients.
- 20% cardiovascular risk reduction for each 5 mm Hg decrease in asleep systolic BP mean independently of changes in clinic or any other ambulatory BP parameter has been reported

Conclusions

- Evaluation of the contemporary published evidences reveal that targeting the nocturnal hypertension in patients with T2DM is useful to improve the outcomes
- Adequate control of non-dipping BP is useful to prevent morning surge which would prevent the complications due to hypertension
- Without any costly intervention a simple strategy to alter the timing of the administration of the drug has the potential to reduce cardiovascular morbidity and mortality

Communicate

Email: drsagarredkar@gmail.com; vivekredkar@rediffmail.com
Ph: +919422633506

Bibliography

1. Hypertension. 2014 Nov;64(5):1080-7
2. Am J Hypertens. 2012 Mar;25(3):325-34
3. Diabetes Care. 2011 Jun;34(6):1270-6