



## Background

- Light is the most powerful synchronizer but, when exposure occurs at night then it disrupts the circadian rhythms.
- Night workers often experience fatigue mostly due to lack of proper sleep but also because they remain active & alert when their body thinks they should be resting.
- Night Shift may produce variable disruption in circadian pattern of BP/HR along with cortisol and melatonin hormone, which is neuro-endocrine chromomolecule.

## Methodology

### Study Design: Prospective observational study

>62 healthy nursing professionals, aged 20-40 year, performing day and night shift duties were recruited from the Trauma Center, KGMU, India.

>Subjects with any acute/chronic illness, known patients of diabetes mellitus, other endocrinal disorders, hypertension, coronary artery disease, and chronic renal were excluded from the study.

>Ambulatory blood pressure and heart rate were recorded at every 30 min intervals while awake and each hour in night time.

>Estimated 6 sulfatoxy melatonin by IBL International ELISA Kit.

### Statistical Analysis:

>Ambulatory blood pressure monitoring records were sent to Halberg Chronobiology Center, University of Minnesota, Minneapolis, MN, USA for advanced cosinor analysis.

>Data was analysed by INSTAT graph pad software and groups were compared by paired t test. p<0.05\* was considered just significant, p<0.01 \*\*moderate/very significant and p<0.001 \*\*\*highly Significant.

## Aim and Objectives

- To Study the 24 hours chronomics of Ambulatory BP/HR and its relation with 6 sulfatoxy melatonin level in rotating night shift health care workers.
- To find out whether these changes in circadian pattern of BP/HR and in melatonin level produced by night shift are reversible or not in due course of time.

Table: Baseline characteristics of night shift workers.

Baseline Characteristics	Night Shift Workers (n = 62)
Age	24.74 ± 3.81
Weight (kg)	53.21 ± 8.85
Height (cm)	160.44 ± 8.16
Body mass index (BMI)	20.59 ± 2.40
Diet	
Vegetarian	23 (37.10%)
Non-Vegetarian	39 (62.90%)



Ambulatory Blood Pressure Monitor

## Results

Figure 1

Figure 2

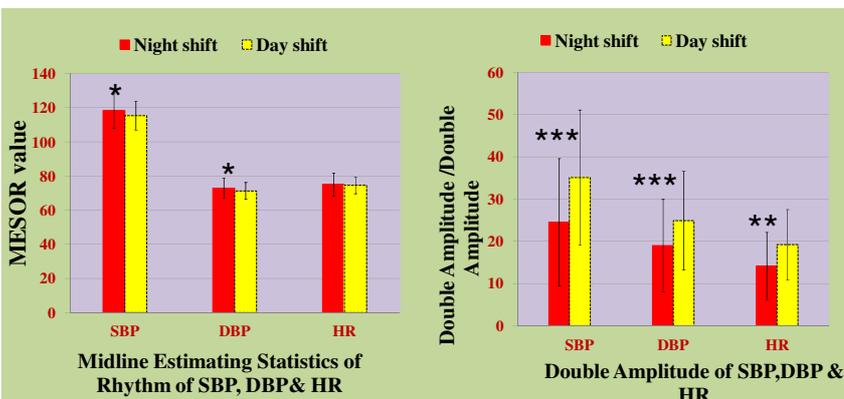


Figure 3A

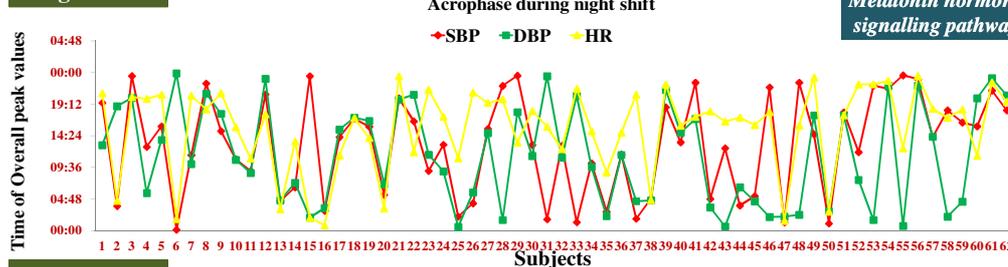
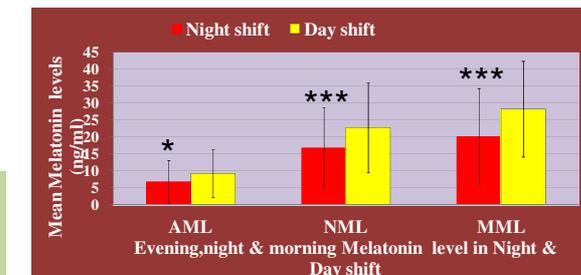
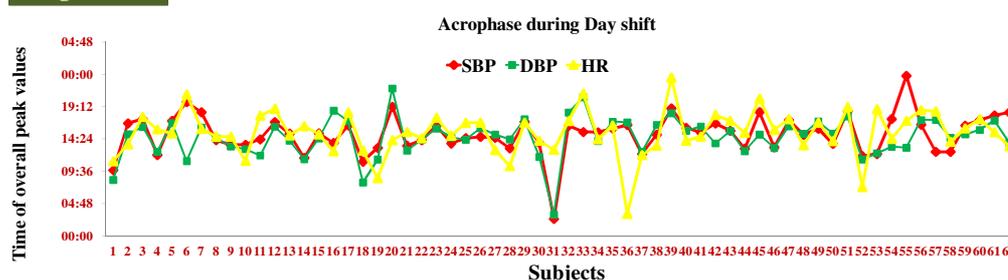
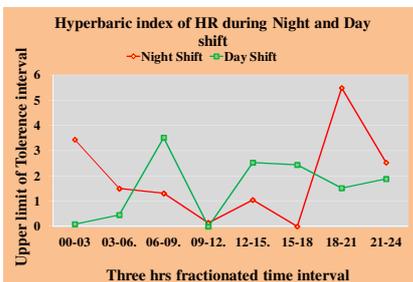
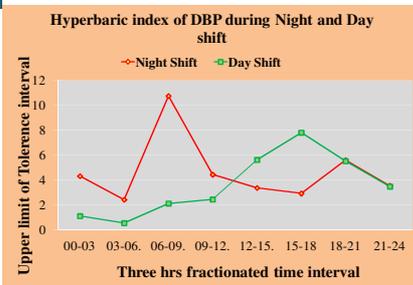
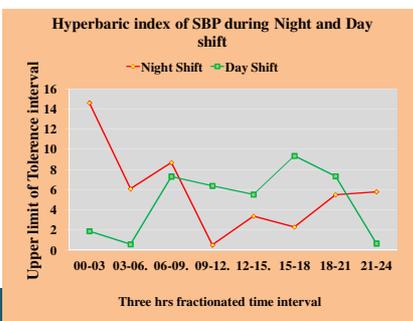


Figure 3B



Melatonin hormone signalling pathway



## Conclusion

The altered circadian pattern of Double amplitude, Acrophase and Hyperbaric index of BP/HR and melatonin level could be contributed to sleep disturbances and adverse effects of night shift schedule. The present study indicates the desynchronization was found during night shift and entrainment of circadian rhythm occurs in the day shift. Entrainment of these physiological rhythms in day shift leads to resynchronization.