

**New standpoint on the role of the autonomic nervous system in young, middle-aged and elderly essential hypertension and the sleep-related changes of neurocardiac regulation**

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**Objective:**

Essential hypertension involves complex cardiovascular regulation, with the autonomic nervous system (ANS) playing a pivotal role. This study explores ANS variations during sleep-wake cycles in essential hypertension, aiming to uncover age and sleep-related patterns in HRV, BP, arterial pressure variability, and BRS.

**Methods:**

We studied 97 males aged 30-79 (53 hypertensive, 44 normotensive), monitoring them during natural nap sleep with polysomnography and BP measurements. HRV and EEG/ECG data underwent power spectral analysis. Statistical analysis included t-tests, correlations, and two-way ANOVA.

**Results:**

Age-related variations in cardiac parasympathetic measures during wakefulness and non-rapid eye movement (nREM) sleep were prominent in young individuals. Hypertension led to early declines in young patients. Age had a stronger impact on autonomic measures during nREM, with more robust correlations in controls. Young hypertensive patients exhibited reduced BrrA during nREM, with no significant differences in middle-aged and old groups. Hypertension significantly lowered BP and various autonomic measures during both wakefulness and nREM.

**Conclusion:**

Monitoring ANS in hypertension, especially during nREM, clarifies its multifactorial origins, highlighting neural factors in sleep-related cardiovascular regulation. Insights apply to young hypertensive patients, aiding clinical management.

中文題目：自主神經系統在年輕、中年和老年原發性高血壓及與睡眠相關神經心臟調控變化上扮演的角色之嶄新觀點

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