

The Association between Various Characteristics of Hypnotics and Cardiac Autonomic Control in Community-dwelling Older Adults: The Yilan Study, Taiwan

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Objective: Alternation of cardiac autonomic function may underlie the link between hypnotics use and the risk for cardiovascular morbidity and mortality. The present study aims to examine the relationship between the various characteristics of benzodiazepine receptor agonists (BzRAs) and heart rate variability.

Methods: A community-based survey using the cohort of the Yilan Study, Taiwan, was conducted. Older adults aged 65 and more were randomly selected to participate. Cardiac autonomic function was evaluated using heart rate variability where the lowest quartiles of heart rate variability parameters were defined as unhealthy. Those who used BzRAs to help sleep were defined as BzRAs hypnotics users. The characteristics of BzRAs use were further detailed on the half-life, drug compound, frequency of use and cumulative daily equivalent dosage.

Results: In a total of 2612 participants, 379 (6.9%) were BzRAs hypnotics users. In the multiple logistic regression, BzRAs hypnotics users had a higher risk for unhealthier total power and high frequency [OR (95% CI): 1.43 (1.07-1.91) and OR (95% CI): 1.43 (1.07-1.93), respectively]. Among all the BzRAs hypnotics users, those who took benzodiazepine only, compared with any Z-drug users, had higher risk to have unhealthier total power [OR (95% CI): 2.06 (1.05-4.04)]. Users of short half-life (<5 hours) BzRAs hypnotics also had higher risk for unhealthier high frequency [OR (95% CI): 3.91 (1.23-12.40)] as compared to that of long half-life (>5 hours). Daily benzodiazepine equivalent of middle tertile had a higher risk of unhealthier high frequency [OR (95% CI): 3.22 (1.47-7.04)] than lowest tertile.

Conclusion: BzRAs hypnotics linked with poor cardiac autonomic function. Various characteristics of BzRAs hypnotics showed independent pattern of association with cardiac autonomic function.

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