KSN SEOUL, KOREA 2023
April 27(Thu) - 30(Sun), 2023
Coex, Seoul, Korea

Abstract Type : Poster
Abstract Submission No. : 1163

Effect of sleep on bone mineral density and its clinical significance in CKD

Junha Ryu[1], Eunjin Bae[1], Seolje Lee[1], Taewon Lee[1], Dongjun Park[1], Yaerim Kim[3], Jeonghwan Lee[2], Jungpyo Lee[2]
[1]Department of Internal Medicine-Nephrology, Gyeongsang National University Changwon Hospital, Korea, Republic of
[2]Department of Internal Medicine-Nephrology, SMG-SNU Boramae Medical Center, Korea, Republic of
[3]Department of Internal Medicine-Nephrology, Keimyung University Dongsan Medical Center, Korea, Republic of

Objectives: Insomnia is associated with high mortality and cardiovascular disease, but studies on the relationship between insomnia and bone mineral density (BMD) are rare. Insomnia is associated with sympathetic nerve activation, which is known to affect the cardiovascular system, and is also associated with increased inflammation and osteoclast activation. We investigated the effects of insomnia or sleep duration on low BMD.

Methods: We used data from the NHANES, and excluded cases with no BMD score, men under 50 years, pre-menopausal women. Low BMD was defined as osteopenia, and osteoporosis. Sleep duration was divided into 3 groups: 7-8hr, <7hr, and >8hr. We divided 4 groups according to sleep duration 7-8hr, <7hr or >8hr and low BMD.

Results: A total of 6,930 participants were analyzed, and the sleep duration 7-8hrs group had the highest proportion of male, and the lowest proportions of current smoker, diabetes, CKD, and trouble sleeping. Compared to sleep duration 7-8hrs group, >8hrs group had a significant relationship with low BMD, but insomnia was not associated with low BMD.
There was a significant correlation between estimated glomerular filtration rate (eGFR) and BMD, but there was no statistical significance between sleep duration and low BMD in CKD. However, in the group with proteinuria, sleep duration >8hr group was significantly associated with low BMD. In addition, in CKD patients, the risk of all-cause mortality was significantly higher in the group with abnormal sleep time and low BMD compared to the group with normal BMD and sleep duration 7-8hr group.

Conclusions: Sleep duration was significantly associated with low BMD, which was also observed in participants with proteinuria. In addition, 7-8 hr of sleep and normal BMD were associated with a significantly lower risk of death in CKD patients.