

SLEEP DEPRIVATION AND ITS ROLE IN THE EARLY PATHOLOGY OF ALZHEIMER'S DISEASE



Tomić L¹, Sulić P¹, Ahmić H¹

¹School of Medicine, University of Zagreb

Background

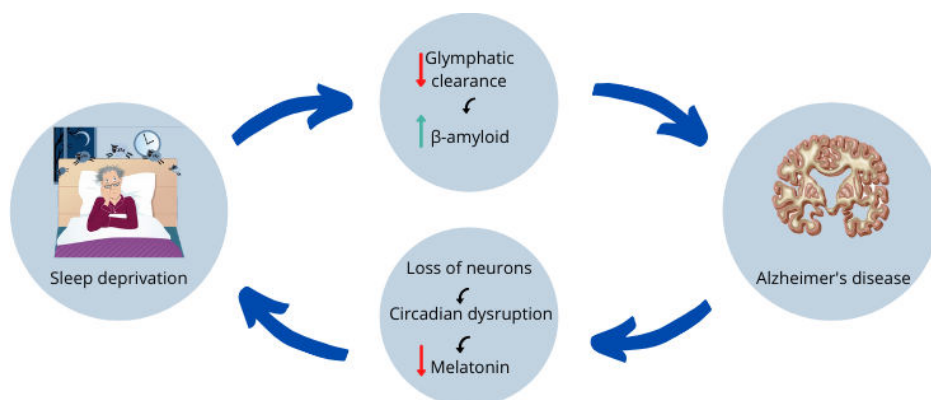
- Alzheimer's disease (AD) is the most common form of dementia and thus an important health challenge today
- Sleep disturbances occur long before the onset of cognitive decline, so the aim is to discuss its possible correlation to early pathology of AD

Material & Methods

- We searched PubMed with keywords: sleep deprivation, Alzheimer's disease, beta amyloid and tau
- The search identified 19 studies
- Only randomized control trials and review articles were included, yielding a total of 9 results

Results

- One randomized controlled study showed that only one night of sleep deprivation in healthy subjects significantly increased morning beta amyloid levels in the CSF
- Review articles presented research showing a bidirectional relationship between sleep deprivation, in terms of increased wakefulness and decreased NREM sleep, and accumulation of either beta amyloid and tau protein, or both
- However, another randomized crossover study showed no significant change in the build-up of AD biomarkers



Conclusion

- Further meta-analysis should be done to estimate the significance of the studies
- AD pathology occurs 15-20 years before the onset of cognitive decline and sleep deprivation, as one of the earliest hallmarks, reduces the clearance of AD biomarkers
- Therefore, the important role of sleep as a treatable and a modifiable risk factor for AD might become a target for therapeutic intervention in the preclinical stage of the disease and a preventative strategy