Circadian and sleep dysfunction in Alzheimer's disease Uddin M.S. Tewari D. Mamun A.A. Kabir M.T. Niaz K. Wahed M.I.I. Barreto G.E. Ashraf G.M. Alzheimer's disease (AD) is a devastating and irreversible cognitive impairment and the most common type of dementia. Along with progressive cognitive impairment, dysfunction of the circadian rhythms also plays a pivotal role in the progression of AD. A mutual relationship among circadian rhythms, sleep, and AD has been well-recommended. The etiopathogenesis of the disturbances of the circadian system and AD share some general features that also unlock the outlook of observing them as a mutually dependent pathway. Indeed, the burden of amyloid? (A?), neurofibrillary tangles (NFTs), neuroinflammation, oxidative stress, and dysfunction of circadian rhythms may lead to AD. Aging can alter both sleep timings and quality that can be strongly disrupted in AD. Increased production of A? and reduced A? clearance are caused by a close interplay of A?, sleep disturbance and raised wakefulness. Besides A?, the impact of tau pathology is possibly noteworthy to the sleep deprivation found in AD. Hence, this review is focused on the primary mechanistic complexities linked to disruption of circadian rhythms, sleep deprivation, and AD. Furthermore, this review also highlights the potential therapeutic strategies to abate AD pathogenesis. © 2020 Elsevier B.V.

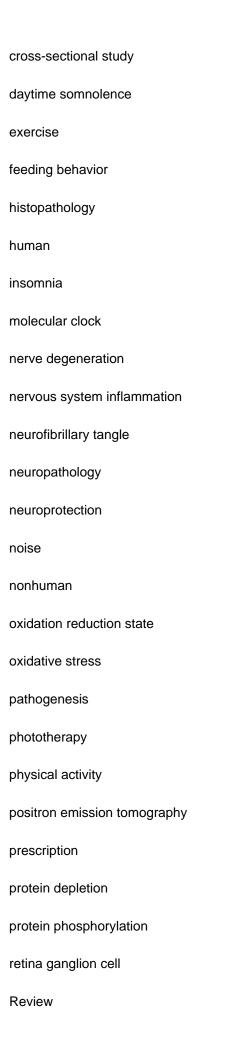
Alzheimer's disease

Amyloid?

Circadian rhythms

Neurofibrillary tangles

Sleep
almorexant
amyloid
amyloid beta protein
cholinergic receptor
hypnotic agent
melanopsin
melatonin
orexin
Pittsburgh compound B
ramelteon
tasimelteon
tau protein
transcription factor CLOCK
trazodone
Alzheimer disease
amyloid plaque
basal forebrain
biological rhythm
blood pressure
body temperature
bright light therapy
cell loss
chronobiology
circadian rhythm
cognition



sleep
sleep deprivation
sleep disorder
sleep hygiene
sleep pattern
sleep waking cycle
wakefulness