OLDERS WOMEN SLEEP DIFFERENTLY TO OLDER MEN

Sleep disturbances increase with advancing age in both women and men. Older women take longer to fall asleep, have greater difficulty in staying asleep, have more daytime sleepiness, less stage 1 and stage 2 NREM sleep. Older women are more likely to develop insomnia, the restless sleep syndrome and have more obstructive sleep apnoea.

Gonadal hormones influence circadian and homeostatic processes. Both the sex chromosomes and gonadal hormones contribute to the differences between men and women at cellular, organic and systemic levels, whilst environmental, social and cultural influences further impact these differences.

Sleep is divided into two states, non-rapid eye movement sleep (NREM) and rapid eye movement sleep (REM). These are measured by recording the electrical field activity of large groups of cortical neurons and muscle cells via polysomnography.

NREM sleep begins in stage 1, characterized by a drowsy state and the prevalent EEG frequency beginning to slow. This is the lightest state of sleep and the patient can be aroused by light touch or softly calling her name. It comprises about 2–5% of a night’s sleep. Stage 2 has a similar basic pattern and occupies about 45–55% of the night, with sleep deepening and a higher arousal threshold being required to awaken the patient. Stage 3 is the beginning of high-voltage, slow-wave activity, which constitutes about 3–8% of the cycle. Stage 4, also known as slow-wave sleep, constitutes 10–15% of the cycle; it has the highest arousal threshold. During REM sleep, the EEG returns to a profile similar to wakefulness.

Women spend more time in bed and sleep longer, but report a poorer sleep quality than men. Women are more likely to report sleep disturbances or insufficient sleep compared to men. Women have less wakefulness after sleep onset, less stage 1 sleep, more slow-wave sleep and more slow-wave activity during their sleep compared to men. Women go to bed earlier than men from childhood to menopause when the sex differences are no longer seen.

Sleep data come from placebo-controlled trials where estrogen therapy was administered to peri- and postmenopausal women. Findings suggest that estrogen decreases latency to sleep onset, decreases wakefulness after sleep onset, increases total sleep time and decreases rate of cyclic alternating patterns. Estrogens enhance REM sleep but not NREM sleep. Progesterone exhibits sleep-promoting effects by acting as a GABAA receptor agonist. Progesterone increases NREM sleep, and has actions that are very similar to those of benzodiazepines. Androgens appear to have a mild positive influence on REM sleep and seem to induce sleep apnea onset in men and women.

Increased daytime sleepiness amongst older women arises from the fact that their sleep is characterized by frequent awakenings, arousals and less slow-wave sleep, which results in lighter and non-restorative sleep. Use of hypnotics to overcome sleep disorders among women is greater than amongst men. Men snore more than women, but older women have more difficulty in falling and maintaining sleep, have more sleep arousals and sleep less over weekends.

Research in the world of sleep is still in its infancy, but accumulating evidence supports that inherent gender differences between older women and men are apparent. Unfortunately at present, robust data is conflicting as to whether hormone therapy improves sleep in the menopause - the marked subjective improvement in sleep with hormone therapy has not been substantiated in all studies when assessed by polysomnography. Further research in this area is needed to draw firm conclusions.

Reference