

# Sleep Disorders Go Unidentified in Elderly

Try behavioral approaches first alone or in combination with medication.

BY KERRI WACHTER  
Senior Writer

SAN JUAN, P.R. — Sleep disorders become more common with increasing age, but effective behavioral and pharmacologic therapies are available, sleep experts said at the annual meeting of the American Association for Geriatric Psychiatry.

“Most older adults are not being treated for their insomnia, and most older adults won’t get a diagnosis of insomnia,” despite the high prevalence of the disorder among older individuals, said Dr. Phyllis C. Zee, medical director of the Sleep Disorders Center at Northwestern Memorial Hospital in Chicago.

There are several age-related changes in sleep architecture. The number of awakenings during sleep time increases, especially in early morning. The amount of light sleep is increased and the amount of deep sleep is decreased. There also is less REM sleep, said Dr. Zee, who also serves as a professor of neurology, neurobiology, and physiology at Northwestern University, Chicago.

Two major mechanisms regulate sleep in humans: the homeostatic drive and the circadian drive. Control of the circadian system resides in the suprachiasmatic nucleus, which provides timing information for physiologic, hormonal, and behavioral rhythms.

Several changes in circadian sleep rhythms come with age. The amplitude of circadian rhythms decreases, while the variability of circadian rhythms increases. “There’s also a very noticeable advance in [the] phase of circadian rhythms,” Dr. Zee said. Severe disruptions of the sleep/wake cycle often occur among older adults with dementia and in those in nursing homes.

The homeostatic drive for sleep depends on accumulating enough hours of wakefulness to trigger sleep, and this drive is reset during sleep. It’s thought that the homeostatic drive is regulated by the ventrolateral preoptic area of the hypothalamus.

It’s important to understand these sleep mechanisms when treating sleep disorders. “There is not a thing you can do to make yourself go to sleep. ... What you can do is arrange the circumstances and timing of your wakefulness in a way that makes the involuntary process of sleep more likely,” said Dr. Daniel J. Buysse, medical director of the sleep evaluation center at the Western Psychiatric Institute and Clinic of the University of Pittsburgh.

To understand the patient’s sleep habits, behavioral therapists start by asking about average time in bed, average rise time, total time in bed, time to fall asleep, amount of wakefulness during the night, and total wake time.

Using this information, they calculate the amount of total sleep (total time in bed minus total wake time). For most individuals with insomnia, there is a discrepancy between the amount of sleep that they get and the amount of time they spend in bed, said Dr. Buysse, also a professor of psychiatry at the University of Pittsburgh.

Dr. Buysse and his colleagues have tested the effect of these changes in sleep behavior on sleep quality in a small study of 13 patients who made these changes, compared with 12 subjects who received basic sleep information.

Those in the active treatment group showed a significant improvement in sleep quality, while those in the control group showed no change.

In addition, those in the active treatment group showed improvement in sleep latency—how long it takes to fall asleep—and waking after sleep onset, while controls did not.

Pharmacologic management of acute and chronic insomnia includes benzodiazepine receptor agonists, melatonin, melatonin receptor agonists, and antidepressants.

In 2005, a National Institutes of Health state-of-the-science panel noted that hypnotics are efficacious in the short-term treatment of insomnia. However, with the exception of eszopiclone, the benefits have not been studied for long-term use.

Zaleplon (Sonata), zolpidem (Ambien), and eszopiclone (Lunesta)—benzodiazepine receptor agonists—are all indicated for the treatment of insomnia. “These drugs differ [from benzodiazepines] mainly in terms of their pharmacokinetics,” said Dr. Buysse. Otherwise, these drugs are quite similar to benzodiazepines. One note of caution, however: Benzodiazepines and related drugs have been shown to be a risk factor for falls.

Ramelteon, a melatonin receptor agonist, “takes advantage of the circadian system that secretes melatonin at night,” Dr. Buysse said. Ramelteon is short acting and has an active metabolite. Caution should be used with this drug when prescribed for patients also taking fluvoxamine, which inhibits some of the enzymes that degrade ramelteon.

Ramelteon has been shown to reduce sleep latency and increase total sleep time in younger and older adults. The drug appears to be less effective on wakefulness after sleep onset.

No evidence-based standards of practice or treatment algorithms exist for treating insomnia in older adults, “but I think that it makes sense to always use behavioral approaches before, or in combination with, medication,” Dr. Buysse said. ■

# Motion Sensors, Devices Help Track the Elderly and Detect Falls

BY MARY ELLEN SCHNEIDER  
Senior Writer

DALLAS — Motion sensors and radio frequency devices may not be the first things that come to mind when thinking of long-term care, but these technologies are playing a key role at one residential care facility near Portland, Ore.

Lydia Lundberg and Bill Reed, co-owners of Elite Care, have developed Oatfield Estates, a group of residential care facilities that combine extended family-style living with high-tech capabilities.

The six houses are located in a quiet, residential neighborhood. Each includes 12 resident suites and 3 live-in suites for staff members.

“We wanted to create an environment where we would want to live in another 30 years when we need help with our [activities of daily living],” Ms. Lundberg said at the annual symposium of the American Medical Directors Association.

The technology incorporated into the facilities is aimed at better tracking residents and staff, and providing alerts about potential falls or wandering. It also allows the staff to accommodate residents with dementia without having a locked facility, she said.

For example, residents and staff wear a wireless pendant at all times that allows the management to track everyone’s movements at the facility. The pendant uses infrared and radio frequency signals.

The data generated by the tracking technology allow the management to generate reports about how much time a particular staff person has spent with a resident in his or her room, for example.

The pendants are well accepted by staff at the facility and can be very helpful when discussing care plans with members of the residents’ families, Ms. Lundberg said. Often, “the families are in denial about how much time their parents need,” she said, adding that the device’s radio frequency is similar to the frequencies used in wireless house phones and television remote controls.

The facility also uses technology to alert staff to potential falls by residents.

For example, load cells—which measure the variation in weight that is placed on an object—are built into most of the beds to create an alert that lets staff members know when residents get out of bed. The alert is used only for residents who are at risk of falling.

That way, staff can check on them when the residents are out of bed to ensure they haven’t fallen, Ms. Lundberg said.

Other technology is aimed at making sure residents who have dementia don’t wander. There are sensors on the residents’ doors that allow staff to know when residents are leaving or entering, and sensors on

the driveway to detect when residents get too close. If residents remove their pendants and attempt to wander off, a sensor on the driveway sets off lawn sprinklers, which stops them most of the time, Ms. Lundberg said.

Technology also is used to collect information on time spent in bed, weight changes, call history, socialization, activity level, and other measures. If the resident has agreed, family members can track the resident’s status on several measures through a secure, online family portal. Being able to provide this access means family members are more likely to support actions by staff, instead of questioning them, Ms. Lundberg said.

“The data stream allows you to predict and adapt to changing conditions of the residents,” she said.

The cost of installing the sensors and software in each suite is \$4,000 and slightly more for double occupancy, Ms. Lundberg said. Service and upgrades are extra.

In addition, residents pay about \$3,450 in base rent at the facility, plus care services. So the average monthly cost for a resident is about \$4,200, according to Ms. Lundberg.

Ms. Lundberg is not the only one looking at technology in the long-term care field. The Alzheimer’s Association, along with Intel Corp., has funded 10 projects during the past 2 years as part of its Everyday Technologies for



**Versus Information Systems badges use infrared signaling technology to pinpoint the current location of residents.**

Alzheimer Care grant program, said Dr. Eric G. Tangalos, professor of medicine and codirector of the Kogod Program on Aging at the Mayo Clinic in Rochester, Minn.

The grant projects have looked at a range of research topics, including audiovisual prompts for Alzheimer’s patients to complete their daily living activities, and Internet-based support tools that would assist caregivers.

One project that was conducted at the University of Toronto looks at ways to help people with dementia improve their handwashing. The researchers used a system that included a desktop computer, a camera mounted over the sink, and audio prompts.

The relatively low-tech intervention gave patients more independence since they required less direct help from nurses and other caregivers, Dr. Tangalos said. ■