

SUNDOWNING

Why evenings can be harder on people with dementia—and how to cope

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PUBLISHED MARCH 2, 2023

As the sun sets, some patients become confused, agitated, or even hallucinate. Here's what you need to know about the phenomenon known as "sundowning."

When evening approaches, caregivers of dementia patients know to be on their guard for sundowning: a constellation of behaviors that can include restlessness, agitation, aggression, confusion, and wandering.

"Nurses will talk about it like almost a light switch," says Trey Todd, a neuroscientist at the University of Wyoming who wrote a 2020 review of the scientific literature on sundowning. These behaviors tend to begin around the same time in the late afternoon or early evening and last for roughly four hours.

Sundowning is frequently described among patients with Alzheimer's disease and related dementias, but not all people with those disorders experience it. Reports of its prevalence differ, but Todd says the most conservative estimates suggest about 20 percent of dementia patients will experience sundowning at some point.

When it does happen, sundowning can upend life for both people with dementia and their caregivers. It can disrupt sleep for an entire household and even put patients at risk of harming themselves or others. Experts say sundowning is often what drives families to seek full-time professional care for their loved ones.

Scientists still have a long way to go to understand sundowning—but in the meantime, they have identified treatments that may offer relief.

WHAT IS SUNDOWNING?

Even though it has been described by doctors for more than 80 years—originally called “senile nocturnal delirium” in 1941—scientists still haven’t settled on a definition for sundowning. Milap Nowrangi, a neuropsychiatrist at Johns Hopkins Medicine, says it’s “more of a phenomenon than it is a symptom or a syndrome.”

The characteristics and frequency of sundowning vary widely, but Nowrangi’s patients and their families describe some typical changes. Right around sundown, their loved ones tend to become confused, agitated, and restless. They might start to pace, tug at their clothing, ask to go home even though they are home, or even hallucinate. Their distress is visible to their caregivers and might last for a few hours until they go to sleep.

These characteristics may be primarily cognitive and behavioral, but Todd says that sundowning seems to have an emotional underpinning—“almost like mood swings at a particular part of day.”

Although severe sundowning is associated with Alzheimer’s disease and other forms of dementia, older people without dementia occasionally report mild sundowning-like symptoms. Nowrangi says that could be explained by the natural changes in an aging brain, and he adds that scientists are exploring whether it could be a marker for future development of dementia.

WHAT CAUSES SUNDOWNING?

Alzheimer’s disease and other dementias cause structures throughout the brain to slowly degrade—which is partly why it’s so hard to pinpoint what causes sundowning. The malady is also nearly impossible to study: People who are experiencing it are generally too agitated to sit through diagnostic tests like blood work and MRIs. But the curious timing of

sundowning has led many scientists to suspect it's related to a dysfunction in a person's circadian rhythm.

The circadian rhythm is the 24-hour cycle that regulates all of the body's natural processes—hunger, thirst, sex drive, body temperature, blood pressure, and sleep. It is all orchestrated by a pacemaker in the brain called the suprachiasmatic nucleus, or SCN, which is located right behind the eyes in the hypothalamus.

There's some evidence that this rhythm is thrown off in people who experience sundowning, says Donald Bliwise, a professor of neurology at Emory University School of Medicine. But he argues that a circadian dysfunction alone wouldn't account for why these negative behaviors are so pronounced at sunset.

“My thinking broadly is that it's still kind of an open question,” he says.

Todd says he believes sundowning is a circadian issue—but we don't know whether it's caused by a misfiring chemical in the brain such as melatonin or some other malfunction in the neural pathways. That's what his lab is trying to find out.

They've started by looking at the ventromedial hypothalamus, a structure near the SCN that has been shown to regulate aggression in mice by releasing a chemical in the evenings, allowing them to wind down for sleep. In a 2018 study, Todd and his colleagues found that deleting the gene that releases that chemical caused mice to exhibit sundowning-like behavior.

But humans have much more complex brains than mice—and Todd says there's nothing about the pathology of the hypothalamus to definitively point to it as the problem. His team is now investigating whether the dysfunction could be caused elsewhere, perhaps in the brain stem.

HOW IS SUNDOWNING TREATED?

Since we don't know what causes sundowning, it hasn't been possible to develop any targeted treatments. But experts say that there's some evidence you can ease symptoms with at-home therapies.

One such method is through bright light therapy, which is often prescribed to people with circadian rhythm-related conditions such as seasonal depression and jet lag. Exposure to bright light during the day stimulates the SCN and helps keep the circadian rhythm on track, which some studies have shown can help patients with dementia. Similarly, studies have shown that exercise can alleviate sundowning symptoms through the same mechanism.

Caregivers can also make sure nothing extraneous contributes to sundowning, says Beth Kallmyer of the Alzheimer's Association. For example, aromatherapy and soft music can be used to block out unwanted smells or noises. It's also important to make sure the person isn't hungry, thirsty, or cold, and to avoid alcohol and caffeine, which can make agitation worse.

"A lot of it is trial and error, which can be frustrating," Kallmyer says. But caregivers needn't deal with sundowning alone. The Alzheimer's Association offers a 24/7 helpline with dementia specialists and social workers who can help families figure out how to cope—even in the middle of an episode.

If sundowning persists, however, a doctor may turn to medication. Nowrangi says patients with particularly severe symptoms may be prescribed anti-psychotic drugs to promote sleep. These are the same drugs used to treat psychiatric diseases like bipolar disease and schizophrenia, which have similar symptoms to sundowning.

"It's a poor excuse to use a medication for something, but it's what we've got," Nowrangi says.

These drugs can have harmful cardiac side effects, however, and the sedation can be dangerous if a patient tries to move around. Taken in the long term, they can destabilize blood sugars. That's why Nowrangi says that doctors should turn to them only if it's necessary to get a patient through a rough patch. But it's a tough line to walk, he adds—you don't want to wait so long to prescribe medication that a patient causes harm to themselves or someone else.

Ultimately, however, more research is needed to help patients—and their caregivers—cope with sundowning.

“We're miles ahead of where we were even five years ago,” Todd says. “I know that's not comforting at all for people who are dealing with loved ones who have Alzheimer's disease. But you've got to start somewhere, and I think we're headed in the right direction.”

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