Researchers discover link between Parkinson's and narcolepsy

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Parkinson's disease is well-known for its progression of motor disorders: stiffness, slowness, tremors, difficulties walking and talking. Less well known is that Parkinson's shares other symptoms with narcolepsy, a sleep disorder characterized by sudden and uncontrollable episodes of deep sleep, severe fatigue and general sleep disorder.

Now a team of UCLA and Veterans Affairs researchers think they know why — the two disorders share something in common: Parkinson's disease patients have severe damage to the same small group of neurons whose loss causes narcolepsy. The findings suggest a different clinical course of treatment for people suffering with Parkinson's that may ameliorate their sleep symptoms.

In their report in the June issue of the journal Brain and currently online, Jerry Siegel, professor of psychiatry and biobehavioral sciences at the Semel Institute for Neuroscience and Human Behavior at UCLA, assistant resident neurobiologist Thomas C. Thannickal and associate research physiologist Yuan-Yang Lai have determined that Parkinson's disease patients have a loss of up to 60 percent of brain cells containing the peptide hypocretin. In 2000, this same group of UCLA researchers first identified the cause of narcolepsy as a loss of hypocretin, thought to be important in regulating the sleep cycle. This latest research points to a common cause for the sleep disorders associated with these two diseases and suggests that treatment of Parkinson's disease patients with hypocretin or hypocretin analogs may reverse these symptoms.

More than 1 million people in the U.S. have been diagnosed with Parkinson's disease, and approximately 20 million worldwide. (The percentage of those afflicted increases with age.) Narcolepsy affects approximately one in 2,000 individuals — about 150,000 in the United States and 3 million worldwide. Its main symptoms are sleep attacks, nighttime sleeplessness and cataplexy, the sudden loss of skeletal muscle tone without loss of consciousness; that is, although the person cannot talk or move, they are otherwise in a state of high alertness, feeling, hearing and remembering everything that is going on around them.

"When we think of Parkinson's, the first thing that comes to mind are the motor disorders associated with it," said Siegel, who is also chief of neurobiology research at the Sepulveda Veterans Affairs Medical Center in Mission Hills, Calif. "But sleep disruption is a major problem in Parkinson's, often more disturbing than its motor symptoms. And most Parkinson's patients have daytime sleep attacks that resemble narcoleptic sleep attacks."

In fact, said Siegel, Parkinson's disease is often preceded and accompanied by daytime sleep attacks, nocturnal insomnia, REM sleep disorder, hallucinations and depression. All of these symptoms are also present in narcolepsy.

In the study, the researchers examined 16 human brains from cadavers — five from normal adults and 11 in various stages of Parkinson's — and found an increasing loss of hypocretin cells (Hcrt) with disease progression. In fact, said Siegel, the later stages of Parkinson's were "characterized by a massive loss of the Hcrt neurons. That leads us to believe the loss of Hcrt cells may be a cause of the narcolepsy-like symptoms of Parkinson's and may be ameliorated by treatments aimed at reversing the Hcrt deficit."

Source: University of California - Los Angeles