REM Behaviour Disorder

For most people, dreams are purely a "mental" activity: they occur in the mind while the body is at rest. But people who suffer from REM behaviour disorder (RBD) act out their dreams. They physically move limbs or even get up and engage in activities associated with waking. Some talk, shout, scream, hit, punch, or fly out of bed while sleeping! RBD is usually noticed when it causes danger to the sleeping person, their bed partner, or others they encounter. Sometimes ill effects such as injury to self or bed partner sustained while asleep trigger a diagnosis of RBD.

What we call "sleep" involves transitions between three different states: wakefulness, rapid eye movement (REM) sleep, which is associated with dreaming, and non-rapid eye movement (NREM) sleep. There are a variety of characteristics that define each state, but to understand REM Behaviour Disorder it is important to know that it occurs during REM sleep. During this state, the electrical activity of the brain, as recorded by an electroencephalogram, looks similar to the electrical activity that occurs during waking. Although neurons in the brain during REM sleep are functioning much as they do during waking, REM sleep is also characterized by temporary muscle paralysis.

In some sleep disorders such as narcolepsy and parasomnias, like REM behaviour disorder, the distinctions between these different states breaks down; characteristics of one state carry over or "invade" the others. Sleep researchers believe that neurological "barriers" that separate the states don't function properly, though the cause of such occurrences is not entirely understood.

Thus, for most people, even when they are having vivid dreams in which they imagine they are active, their bodies are still. But, persons with RBD lack this muscle paralysis, which permits them to act out dramatic and/or violent dreams during the REM stage of sleep. Sometimes they begin by talking, twitching and jerking during dreaming for years before they fully act out their REM dreams.

In the course of "acting out their dreams," people with RBD move their arms and legs in bed or talk in their sleep, or they might get out of bed and move around without waking or realizing they're dreaming. The only sensations the sleeper experiences are what is occurring in their dream. And many of these dreams can be violent or frightening, causing injury to the sleeper and his bed partner.

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HISTORY:

The first series of cases of RBD was described in 1985 by Mark Mahowald, MD, and Carlos Schenck, MD, of the University of Minnesota.

Drs. Mahowald and Schenck and others have found that more than 90% of RBD patients are male, and that the disorder usually strikes after the age of 50, although some patients are as young as nine years old. Most RBD patients are placid and good-natured when awake; however, many of them display rhythmic movements in their legs during non-REM and slow-wave sleep.

A telephone survey of more than 4,900 individuals between the ages of 15 and 100 indicated that about two percent of those surveyed experience violent behaviours during sleep; Mahowald and Schenck estimate that one-quarter of them were probably due to RBD, which means it may be experienced by 0.5% of the population.

CAUSES:

Studies of animals may explain REM behaviour disorder. Animals who have suffered lesions in the brain stem have exhibited symptoms similar to RBD. Cats with lesions affecting the part of the brain stem that involves the inhibition of loco motor activity will have motor activity during REM sleep: they will arch their backs, hiss and bare their teeth for no reason, while their brain waves register normal REM sleep.

"REM behaviour disorder underscores the importance of basic science research in animals," says Mahowald, "because without the information obtained in basic science animal research, the disorder could never have been identified. Sleep is such a young field that we have the opportunity to take advantage of the fact that there is a close collaboration between basic science and clinicians."

DIAGNOSIS:

Because a number of parasomnias may be confused with RBD, it is necessary to conduct formal sleep studies performed at sleep centres that are experienced in evaluating parasomnias in order to establish a diagnosis. In RBD, a single night of extensive monitoring of sleep, brain, and muscle activity will almost always reveal the lack of muscle paralysis during REM sleep, and it will also eliminate other causes of parasomnias.

TREATMENT:

Clonazepam, a benzodiazepine, curtails or eliminates the disorder about 90% of the time. The advantage of the medication is that people don't usually develop a tolerance for the drug, even over a period of years. When clonazepam doesn't work, some antidepressants or melatonin may reduce the violent behaviour. However, it's a good idea to make the bedroom a safe environment, removing all sharp and breakable objects.

DISEASES ASSOCIATED WITH RBD:

Drs. Schneck and Mahowald have conducted research indicating that 38% of 29 otherwise healthy patients with REM behaviour disorder went on to develop a parkinsonian disorder, presumably Parkinson's disease (PD), a degenerative neurological disease characterized by tremors, rigidity, lack of movement or loss of spontaneous movement, and problems with walking or posture. Other studies have found associations between RBD and other neurodegenerative diseases related to Parkinson's.

"We don't know why RBD and PD are linked," says Dr. Mahowald, "but there is an obvious relationship, as about 40% of individuals who present with RBD without any signs or symptoms of PD will eventually go on to develop PD."
"People with RBD will understandably be concerned about the possibility of the later development of PD, given the statistics," says Mahowald. "

We are not aware of anything that can be done to prevent or delay the development of PD in those destined to do so. We recommend an annual evaluation by a neurologist, so if PD is going to develop, it can be detected and treated at the earliest possible time.

"Given the fact that the majority of patients with RBD who went on to develop PD were already taking clonazepam, it is unlikely that clonazepam will reduce the likelihood of developing PD in those so predisposed."

Sleep and Dementia

When you enter REM sleep your body becomes paralysed. This is your body's way of preventing you from acting out your dreams. In a rare sleep disorder, REM behaviour disorder (RBD), the paralysis mechanism fails, causing the sleeper to move throughout the night, sometimes violently injuring their bed partners.

One study from the Mayo Clinic showed that all patients with RBD eventually develop dementia or Parkinson's disease.

While some [RBD] patients don't exhibit symptoms of dementia, all patients we have seen with RBD do develop the pathology… It's an ethical dilemma. We know that many patients with RBD will develop dementia or parkinsonism, but we can't positively predict what will happen in each individual case. -Dr Boeve, Mayo Clinic

But the correlation doesn't stop there. Just about every form of dementia, especially Alzheimer's, has been associated with extremely poor sleep — increased number of night time awakenings, lower sleep efficiency, increased daytime napping, and decrease in REM and deep sleep.

A 2006 study showed that sleep disturbances increase as the severity of dementia increases.

In other words, brain health is sleep health.