

Behavior

Bruce Bower reports from New York City at the annual meeting of the American Psychiatric Association

A thoughtful angle on dreaming

The conventional view of dreaming depicts it primarily as an unconscious release of emotions and impulses held in check during the day. But a study of living brains at work suggests that dreaming also involves cerebral activity linked to conscious thinking and problem-solving.

Louis A. Gottschalk of the University of California, Irvine, and his colleagues studied the brain metabolism of 36 men while the men were awake and during rapid-eye movement (REM) and non-rapid-eye movement (NREM) sleep. Volunteers spent at least one night in a sleep laboratory. Radioactive glucose isotopes were delivered intravenously when brain waves and other physiological signs indicated the onset of REM sleep — during which much dreaming occurs — and NREM sleep. About 40 minutes after the isotope infusions, the researchers awakened the volunteers and asked them to report any dreams, as well as thoughts and feelings associated with the dreams. Immediately afterward, the team took positron emission tomography (PET) scans to determine the rate of glucose use in various brain regions during the interrupted sleep phase. They also administered PET scans after daytime periods of wakefulness.

Gottschalk and his co-workers scored each volunteer's verbal reports about his dreams or waking mental state for themes of anxiety and hostility. Overall, they found that wakefulness, REM sleep and NREM sleep were linked to different patterns of glucose use throughout the brain. However, REM dreams evoking the most anxiety and hostility were associated with rises in glucose metabolism in a section of the brain's frontal lobes that was comparably active while participants were awake and talking with an experimenter. This brain region is involved in conscious thought and reasoning, the researchers maintain.

Intense dreaming during REM sleep apparently includes mental processes inherent in cognition and problem-solving, they conclude.

Schizophrenia's late start

Schizophrenia, with its baffling mix of symptoms that include social withdrawal, inappropriate emotions and confused thoughts, often begins in adolescence or young adulthood. Claims that full-blown schizophrenia sometimes appears after age 45, and that this so-called "late-onset" form is a distinct subtype of the disorder, are controversial.

But a review of 25 studies of schizophrenia's course indicates nearly one-quarter of all cases do begin after age 40, and many of those individuals may surpass the age cut-off for late-onset schizophrenia, contends Dilip V. Jeste of the Veterans Administration Medical Center in San Diego.

In a study at his own facility, Jeste identified 12 women and eight men who first experienced schizophrenic symptoms in their 50s. At the time of the research, they had been diagnosed as schizophrenic for approximately six years.

The patients' schizophrenic symptoms generally were of moderate severity, Jeste says. Eighteen patients had been or were currently married, a clear sign that schizophrenia had not blotted out all social capacities. The patients typically described bizarre delusions that they were being persecuted by some external person or force, and a majority experienced frequent auditory hallucinations. Delusions and hallucinations eased substantially with about one-quarter the daily dose of antipsychotic medication typically used with younger schizophrenics, Jeste points out.

"It's not clear whether late-onset schizophrenia is a distinct diagnostic subtype," he notes. Nevertheless, the emergence of schizophrenia after age 45 is probably not as rare as is often assumed, according to Jeste.

Biomedicine

Kathy A. Fackelmann reports from Boston at the World Conference on Lung Health

Drug spray strikes out in severe pneumonia

Scientists know that an aerosol form of the drug pentamidine can help prevent *Pneumocystis carinii* pneumonia, a deadly infection that strikes many people with AIDS. They also know that intravenous injections of pentamidine effectively combat established *P. carinii* infections. However, intravenous pentamidine often causes severe side effects such as nausea and blood disorders, whereas the inhaled form generally produces nothing more serious than a cough. The FDA has approved aerosol pentamidine as a pneumonia preventer but not as a treatment for full-blown *P. carinii* pneumonia. Nevertheless, the spray's milder side effects have prompted many physicians to prescribe it for established infections.

Now, however, a preliminary study shows that while inhaled pentamidine works effectively in mild pneumonia, it sometimes fails in more advanced cases.

Guy Soo Hoo and his colleagues at the University of California, Los Angeles, studied 21 homosexual men with AIDS who had developed mild to moderate *P. carinii* pneumonia. For 21 days, they administered aerosol pentamidine to 11 of the men and the intravenous version to the remaining 10 participants. Five of the men in the spray group showed a worsening in pneumonia symptoms after about seven days of treatment. Three of those five eventually improved after the researchers switched them to intravenous pentamidine or another standard pneumonia-fighting agent, but the other two patients subsequently died of advanced pneumonia. In contrast, pneumonia symptoms subsided in all 10 men in the intravenous group, the researchers say.

A closer examination of the five who did not respond to the spray revealed they had entered the study with a more severe pneumonia than originally believed. Soo Hoo says people with severely diseased lungs may not be able to inhale enough of the drug to fight the tricky *P. carinii*. The team must complete larger trials to verify its finding that aerosol pentamidine has limited efficacy in advanced cases, he adds.

The double whammy of TB and AIDS

In July 1987, a 40-year-old truck driver walked into a state-run clinic in Myrtle Beach, S.C., with symptoms of tuberculosis. Clinic workers were surprised because both the man and his wife had been treated for tuberculosis years before. Once again, the man improved with treatment. But when his wife showed signs of reactivated tuberculosis later that same year, public health officials began to suspect a link to HIV, the virus that causes AIDS. Indeed, both patients tested positive for HIV, although both denied high-risk behavior for AIDS. Further medical sleuthing revealed that the virus had followed a path of heterosexual transmission, infecting a total of five people in the predominantly rural area.

That case study, reported by Sandra C. Carmichael and her colleagues at the Waccamaw Public Health District, underscores the importance of the federal recommendation that physicians routinely test for HIV when confronted with a case of tuberculosis.

In a related report, Alan B. Bloch and Dixie E. Snider of the Centers for Disease Control in Atlanta have added to the evidence suggesting the United States is experiencing a surge in tuberculosis cases (SN: 2/6/88, p.92). From 1985 to 1988, they estimate, U.S. physicians reported more than 22,000 "excess" tuberculosis cases — above and beyond the number projected based on past trends. Bloch and Snider blame the upswing on HIV, which damages the immune system and allows opportunistic microorganisms, including *Mycobacterium tuberculosis*, to flourish. Bloch says people with both HIV and TB must take anti-TB drugs for a longer period than people who have TB only.