

Panel urges treatment for panic disorder

Effective treatments, both psychological and pharmaceutical, exist for panic disorder, a condition that strikes about one in 75 people at some time in their lives. Unfortunately, no systematic studies exist to guide physicians and mental health clinicians to the best form of treatment for specific cases of panic disorder, concludes a report issued last week by a panel of psychiatrists and psychologists convened by the National Institutes of Health in Bethesda, Md.

Panic disorder involves recurring panic attacks, 10- to 15-minute episodes in which an overwhelming fear of imminent death, going insane or loss of control takes over. Physical symptoms such as shortness of breath, dizziness, racing heart, nausea and chest pain often ac-

company the attacks. Panic disorder sufferers often experience the episodes of terror at random moments, although they frequently occur in association with stressful events, such as surgery, pregnancy and heavy caffeine intake.

At least one in three panic disorder sufferers develops agoraphobia, a fear of places or situations that they feel might trigger a panic attack or, in the event of an attack, hinder their escape or the delivery of help. Severe agoraphobics rarely venture from their homes.

Some psychoactive medications ease panic symptoms, the NIH panel asserts. These include two classes of antidepressants — tricyclics and monoamine oxidase inhibitors — and three tranquilizers classed as benzodiazepines. Cognitive-behavioral therapy — designed to change mistaken beliefs about normal physiological reactions when anxious and provide gradual, supportive exposure to feared situations — also serves as an effective treatment, the panel adds.

"To some degree, these have been dueling therapies," says panel chairman Layton McCurdy, a psychiatrist at the Medical University of South Carolina in Charleston. Psychiatrists generally emphasize drug treatment for panic disorder and believe the repeated attacks stem

from an imbalance of specific chemical messengers in the brain, McCurdy notes; psychologists stress cognitive-behavioral approaches and argue that panic disorder results from misinterpretations of bodily responses to normal anxiety.

As a result, panel members could find no studies comparing the two categories of panic disorder treatments or charting their combined use. The first such investigation, now underway at four universities and directed by psychologist David H. Barlow of the State University of New York at Albany, remains in its early stages.

However, a return of panic symptoms apparently occurs much less often after cognitive-behavioral therapy, compared with drug treatment, McCurdy remarks.

For now, the panel recommends that clinicians reassess using any treatment that fails to reduce panic symptoms within eight weeks.

Although the report takes a "balanced and judicious" stand, panic disorder still evokes considerable controversy, says psychiatrist Gerald L. Klerman of Cornell University Medical College in New York City. Klerman did not sit on the NIH panel, but he notes that debate centers on whether panic disorder represents a diagnosis distinct from more general forms of anxiety, concerns over the addictive potential of benzodiazepines and questions about the actual efficacy of psychological treatments. — B. Bower

UV pours through ozone hole

Even as this year's ozone hole opens over Antarctica, scientists report that the region received a dramatically high dose of ultraviolet radiation in late 1990 as a result of last year's ozone hole.

During December, the beginning of the austral summer, levels of damaging ultraviolet light last year registered twice their normal value, according to John E. Frederick and Amy D. Alberts of the University of Chicago, who made their measurements at Palmer Station, a U.S. base on the Antarctic Peninsula. The radiation reaching Antarctica last summer may have been the strongest the region has experienced since the ozone layer formed about a billion years ago, the researchers assert in the October GEO-PHYSICAL RESEARCH LETTERS.

Ultraviolet light from the sun can harm humans, plants and animals. In Antarctica, biologists have found such radiation damages the DNA of certain species of phytoplankton, tiny floating plants that are a critical component of the polar food web. The seasonal hole began forming in the late 1970s because of increasing concentrations of ozone-destroying chlorine pollutants in the stratosphere.

Ultraviolet radiation reached such strong levels in 1990 because the springtime ozone depletion persisted longer than it had in past years, the researchers say. Winds from the north normally invade the Antarctic stratosphere in October and November, replenishing lost ozone before the most intense sunlight reaches the southern hemisphere. Because this process was delayed, ozone remained diminished even into summer. While polar regions normally receive far less intense light than the midlatitudes, the amount of ultraviolet light reaching Palmer Station last year surpassed the peak summer levels typically seen in a city like Chicago. □

Vasodilating drugs may help — and harm

George often suffers ischemia, reduced blood flow to the heart that is triggered in part by atherosclerosis, fatty deposits that can clog coronary arteries. When George feels the chest pain caused by an ischemic attack, he reaches for nitroglycerine, a drug that dilates the coronary arteries and thus floods the heart with oxygen-rich blood.

Although vessel dilators are a common treatment for the millions of Americans who suffer ischemic chest pains, some researchers now suspect that frequent use of such drugs may pose a hidden danger: While the rush of blood relieves chest pain, it also creates free radicals, chemically reactive molecular fragments that often contain oxygen. These fragments may damage the DNA in mitochondria, tiny factories within cells that generate energy. After repeated attacks, the mitochondria may lose some of their capacity to produce the energy that fuels the heart's pumping.

To test the hypothesis linking mitochondrial-DNA damage to heart disease, Douglas C. Wallace of Emory University in Atlanta and his colleagues obtained cardiac tissue from autopsies or heart-transplant operations. The

team examined heart tissue from seven people with severe atherosclerosis and 10 with other types of heart problems. Tissues from 10 people with no evidence of heart disease served as controls.

In the Oct. 2 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the researchers report finding no detectable damage to mitochondrial DNA in hearts from controls under age 40, and only very low levels of this DNA injury in tissues from controls over 40. Some mitochondrial-DNA damage — perhaps caused by brief periods of reduced blood flow to the heart — may therefore represent a normal part of aging, Wallace says.

More importantly, when compared to controls, all hearts obtained from people with atherosclerosis showed an eight- to 2,200-fold increase in mitochondrial-DNA damage. This suggests hearts experiencing regular ischemic attacks may suffer irreversible mitochondrial damage that in turn leads to a decline in the heart's pumping ability, the researchers say. Because three of the 10 people with other cardiac abnormalities also possessed mitochondrial-DNA damage, Wallace's group suspects mitochondrial-DNA injury may play a role in other types of heart disease as well.

Searching out how a severe diet slows aging

Toxicologists want to redefine aging. While some people remain spry, alert and relatively healthy into their 90s, others succumb to degenerative ailments in their 60s or earlier. Since chronological age offers an unreliable gauge of senescence, 14 research teams are now examining thousands of well-cared-for mice and rats — half of them receiving just 60 percent of what the others eat. The rationale: Because studies have shown that restricted diets can extend the life of rodents, age-related biomarkers of disease and degenerative change should vary between the well-nourished but chronically hungry animals and their shorter-lived, full-fed littermates.

The National Institute on Aging, which funds this biomarkers search, has just announced details on one of the first products of its program — a preliminary catalog of age-related tissue abnormalities in four strains of mice. "The biggest surprise to me is just how widespread this [diet restriction] effect is," says study director Roderick T. Bronson at the Agriculture Department's Human Nutrition Research Center on Aging at Tufts University in Boston.

Previous studies, generally done in just one or two rodent strains, found that chronically hungry animals develop

fewer tumors and kidney problems. But nobody examined the whole range of degenerative changes that occurs throughout tissues, notes Bronson.

He and USDA colleague Ruth D. Lipman compared the occurrence and timing of 136 different tissue changes — representing all organs — in 1,100 mice, half of them on the restricted-calorie diet. Diet restriction postponed or diminished nearly all of these changes, the pair will report later this year in *GROWTH, DEVELOPMENT AND AGING*.

For instance, full-fed mice typically die at about 25 months. But among females in this group surviving to 30 months of age, all possessed tumors — some multiple tumors. By contrast, just 17 percent of the diet-restricted females had tumors. Diet differences produced similar changes in the male mice.

The Boston scientists conclude that not only do the chronically hungry mice live 15 to 50 percent longer (depending

on the breed) than hunger-sated littermates, but they also remain healthier. The very lean rats also remain livelier and look better, Bronson says.

These findings "emphasize the universality or global effect of dietary restriction" — both within a single animal and across varying breeds, says Arlan Richardson of Audie Murphy VA Hospital in San Antonio. And "while there's still a question of whether any rodent study will translate to long-lived humans," he says, the diet restriction's global effects "provide more evidence that they will be applicable to humans."

What explains a restricted diet's anti-aging effects? Ronald W. Hart, who heads FDA's National Center for Toxicological Research in Jefferson, Ark., reports that studies from the biomarkers program at his lab indicate that dietary restriction protects DNA from damage (double-strand breaks), increases enzyme-mediated repair of DNA and significantly reduces the expression of proto-oncogenes — genes that when altered can cause cancer.

— J. Raloff

No treaty in sight at climate negotiations

Negotiators have now consumed half the 16 months allotted for drafting an international treaty addressing global warming. But with a June 1992 deadline looming ever closer, they still have little to show for their work.

During the most recent round of talks in Nairobi last month, delegates from around the world had hoped to hammer out a basic negotiating text to take home for examination before the next session in Geneva in December. But after two weeks, delegates left the Kenyan capital without the expected document, raising concern that they will not have a strong treaty ready for signing at a major United Nations conference in Brazil next year.

During the Nairobi discussions, the United States remained firm in its opposition to setting specific targets and timetables for limiting emissions of carbon dioxide—a position that sets it apart from almost all other industrialized countries.

The world's richest nations, excepting the United States, now present a more unified front than earlier this year, says Scott A. Hajost, international counsel for the Washington, D.C.-based Environmental Defense Fund, who observed the meeting. "In appearances, you've got Japan lining up more with the Europeans," he says. In general, these countries call upon the developed nations to stabilize their emissions of carbon dioxide at 1990 levels by the turn of the century.

At a briefing last week, the U.S. chief negotiator at Nairobi, Robert Reinstein, downplayed the differences between the United States and other industrialized nations, spotlighting instead the split between the globe's north and south. At

Nairobi, developing countries expressed growing insistence that the treaty guarantee substantial financial and technical assistance to help the less developed nations reduce their greenhouse gas emissions.

Cornelia Quennet, the principal negotiator for Germany, says developing and developed countries have quite different ideas on financial support the poorer nations should receive. "The amount of money they imagine [receiving] is just not feasible," she told *SCIENCE NEWS*. However, she notes that a prior treaty, designed to protect the ozone layer, resolved similar assistance issues.

The September meeting was the third out of five scheduled negotiating rounds, which started in Washington in February (*SN*: 3/30/91, p.200). Procedural matters took up the initial session and part of the second, so the Nairobi talks offered the first forum wholly devoted to negotiations.

Although the United States did not waver in its opposition to strict commitments, it explained this stance more fully than previously. Reinstein stated that economic analyses indicate the United States would need to spend more than other nations to reach emissions targets, given its dependence on domestic coal.

However, a report from the National Academy of Sciences, released in April, concludes "the United States could reduce its greenhouse gas emissions by between 10 and 40 percent of the 1990 levels at a very low cost." A major portion of these cheap actions would specifically reduce carbon dioxide emissions.

— R. Monastersky

Although preliminary, these findings raise questions about the wisdom of relying on vessel-dilating drugs for people like George, who have arteries choked with plaque, Wallace says. If his team's findings are confirmed, doctors might reduce their patients' risk by turning to treatments that provide longer-lasting relief — such as bypass surgery, in which surgeons shunt blood around a clogged coronary artery.

Wallace emphasizes that his study remains preliminary, however, and may not result in altered treatment for years. Indeed, the new study should not discourage people from continuing nitroglycerine therapy, Wallace asserts. "It's a critical medication that is vital to their survival."

If future research solidifies the link between free radicals and heart damage, researchers might test antioxidants such as vitamin E to see if they protect the heart from long-term injury, adds David Janero of Ciba-Geigy Corp. in Summit, N.J. However, the road to antioxidant therapy remains murky. For example, while one preliminary study showed vitamin E protects bypass-surgery patients from heart damage (*SN*: 11/24/90, p.333), other research on the vitamin's heart-protection prowess has yielded inconclusive results.

— K.A. Fackelmann