Behavior

Shock therapy's Parkinsonian potential

The surgical implanting of fetal tissue into the brains of people with Parkinson's disease has attracted much attention (see story, p.378), but a safer and cheaper treatment may exist, according to a report in the November AMERICAN JOURNAL OF PSYCHIATRY. That treatment is electroshock therapy, also known as electroconvulsive therapy (ECT).

Parkinsonian symptoms, including tremors, muscle rigidity and difficulty in walking, improved markedly in seven patients with the disorder who underwent ECT for severe depression, say Richard Douyon of New York University School of Medicine and his colleagues. At a six-month follow-up, four patients maintained their improvement; the rest maintained it for up to six weeks after ECT ended. Each patient received an average of seven ECT treatments, but five significantly improved after only two treatments, the researchers say.

During the study, doses of dopamine-enhancing drugs commonly given to Parkinson's patients were held constant. Deficits of dopamine, a chemical messenger in the brain, are considered a crucial cause of Parkinson's disease.

ECT also eased depression in all the patients. Electroshock is most commonly used with severely depressed patients who are suicidal or who fail to respond to antidepressant drugs.

Several other reports of ECT's effectiveness in Parkinson's patients—most of whom also suffered severe depression—have appeared over the past 25 years, says Richard Abrams of the University of Health Sciences/Chicago Medical School in North Chicago. Large, controlled studies of these effects are needed, Abrams writes in an editorial accompanying Douyon's article.

In the meantime, Abrams recommends a trial of ECT for all patients with severe or drug-resistant Parkinson's disease, particularly those with "on-off syndrome," a disorder linked to use of the anti-Parkinson drug levodopa and characterized by frequent, abrupt swings from mobility to total incapacitation. "Maintenance ECT" administered once or twice a month after initial electroshock sessions may keep Parkinsonian symptoms from returning, he adds. If administered in brief electrical pulses to the right side of the brain, maintenance ECT should interfere with memory less than drugs such as levodopa, Abrams says.

The medical side of anxiety

A random survey of 2,552 adults in the Los Angeles area finds that nearly half of those with anxiety disorders also have long-standing medical conditions, particularly arthritis, high blood pressure, heart disease and diabetes. About one in three people with other psychiatric disorders, such as depression, mania or alcoholism, suffer from the same medical problems—a rate comparable to that of individuals with no psychiatric disorders, according to Kenneth B. Wells of the University of California, Los Angeles, and his co-workers.

Depression, however, is often as physically disabling as many serious medical ailments (SN: 8/26/89, p.132).

The medical condition of people with anxiety disorders, which include panic attacks and phobias, has important implications for psychiatric treatment, the researchers argue in the November AMERICAN JOURNAL OF PSYCHIATRY. For instance, the sedating effects of anti-anxiety drugs may worsen arthritic symptoms. On the other hand, the same drugs used in combination with relaxation techniques may both ease anxiety and prolong the survival of heart disease patients.

Although alcoholics in the survey showed the same rate of chronic medical illness as nonalcoholics, alcohol use is a major risk factor for high blood pressure, the scientists note. Hypertensives who abuse alcohol may tend to die young, and thus turn up rarely in adult population samples, they suggest.

Environment

The climatic advantages of pigging out

Growing carbon dioxide emissions—principally from fossil-fuel combustion and deforestation—represent the major human contributions toward a future global warming. The beefy diets typical of Western industrial countries exert a less obvious, but still potentially serious, influence on climate warming, says energy analyst Florentin Krause, who calculated their effects while investigating greenhouse-gas releases for a Dutch-sponsored study (SN: 12/2/89, p.359).

Modern cattle-raising practices require setting aside large plots of land for pastures and feed-grain crops—land that might otherwise host carbon-storing forests, observes Krause, of the Lawrence Berkeley (Calif.) Laboratory. Reforesting that land would just about offset the deforestation needed over the next 30 to 50 years to create enough croplands to feed rapidly growing populations in developing nations, he calculates.

Per capita beef consumption is about 170 pounds per year in industrialized countries—almost six times higher than in developing lands. Moreover, while beef demand over the past 20 years has remained stable in developing countries, it has climbed an average of 1 percent annually in industrial nations. "To meet global targets for climate stabilization," Krause contends, beef lovers may need to halve their beef consumption, planning more menus around less resource-intensive proteins.

Though vegetable sources offer a good alternative, concerned individuals need not eschew meat, he says. Producing pork takes only 10 to 30 percent as much feed as beef per unit of protein, he notes. A dietary shift to pork would offer another bonus: lower barnyard emissions of methane—a far more potent greenhouse gas than carbon dioxide. "Anywhere from 5 to 9 percent of what a cow eats goes up in [methane] gas, compared to an average of just 1.3 percent in pigs," Krause explains. In fact, his data suggest cattle production for meat and dairy products represents at least 5 percent of the global-warming contribution from human activities.

Though chickens produce even less methane per unit of protein than pigs, overall a switch from beef to chicken would provide less climatic benefit. The reason? Per unit of protein produced, these birds "are about as grain intensive as cows," Krause says.

Cleaning up after incinerators

The Environmental Protection Agency last week proposed new controls to trap more of the toxic air pollution emitted by municipal waste incinerators. To date, the only air pollution controls required on these facilities have been those that limit dust emissions. The "best available" control technologies required under the new proposal would trap not only five times more of the dusty particulates but also 90 to 95 percent of the sulfur dioxide and hydrochloric acid, and 97 to 99 percent of airborne metals such as lead and mercury.

The proposal would also require "tail gas" cleaning of nitrogen oxides—key contributors to both smog and acid rain—on all incinerators processing more than 250 tons of trash daily. These controls are expected to cut incinerator nitrogen oxide emissions by 40 percent. New controls would be required to trap organic pollutants. To verify that incinerators have incorporated applicable technologies, plant operators would have to monitor for dioxins and furans and ascertain that large incinerators have removed 99 percent of them. Other provisions would require that incinerating facilities employ only "trained and certified" supervisors and, by 1993, recycle 25 percent of the trash they process.

EPA officials say they expect to adopt these rules and apply them to all new plants within one year. Older plants would have several years to make necessary improvements.