ECT: It works, but at what cost?

A 30-year-old woman mired in a "catatonic stupor" received four electroconvulsive therapy (ECT) treatments. The therapy — which primarily consists of applying an electric current to one or both sides of the head — helped bring her out of the stupor. But following the treatments the woman experienced intense, grand mal seizures once or twice a week and had to be given anticonvulsive drugs.

The above example illustrates scientific and ethical dilemmas that continue to surround ECT. The use and known effects of electroconvulsive therapy are detailed in a newly released report by a task force of the American Psychiatric Association. "We are cognizant that some may view this report as self-serving because it has been assembled by an APA committee which comprises mostly APA members," concede the task force members. Having acknowledged that, the group explains that it surveyed about 3,000 APA members concerning their experiences and attitudes about the procedure. Psychiatrists who use ECT report that nearly eight of 10 patients who receive the treatment suffer from major depression and that most of the others are diagnosed as schizophrenics.

Those reports, plus a survey of various studies on ECT outcomes, reflect the general impression that electric shock is helpful in severe depression, particularly in cases where drugs have failed to alleviate symptoms. Responding psychiatrists said 88 percent of their patients were at least moderately satisfied with the results. The procedure's effect on schizophrenia, however, remains unknown, the report says.

Also unknown, though, are the exact mechanisms involved in running an electric current into the brain. The researchers attribute the "therapeutic process" in depression to the "biochemical events which accompany or result from seizures," which are intentionally triggered by the shocks.

But until more is known about the nature of such biochemical changes, ECT remains associated with "adverse effects," including memory loss, continuing seizures, cardiac dysrhythmias and psychological fear of the treatment itself. Some temporary memory loss is considered relatively common among ECT patients, particularly those who receive ECT on both sides of the head. However, the survey reveals that 27 percent of the patients experience *permanent* memory loss for the period of their ECT course (which usually involves several shock administrations over a period of time), and 15 percent have permanent memory loss for what occurred just prior to their treatment.

"We cannot be cavalier about ... memory dysfunctions," says Task Force leader Fred H. Frankel of Harvard University and Beth Israel Hospital in Boston. Some patients still complain of memory loss six to nine months after ECT, he says. The researchers have observed that placing both electrodes over the right brain hemisphere of right-handed patients appears to produce less memory loss than does bilateral ECT.

In weighing the advantages against the risks, the task force concludes that "ECT is an effective treatment" in cases of severe depression in which the risk of suicide is high, when the patient is not eating or drinking adequately or when drug and other therapy is inappropriate. The technique may also be used in severe psychoses if the patient is dangerous and drugs are inappropriate, and in cases of severe catatonia or severe mania. However, the researchers stress that "ECT should not be used solely to control symptoms or violent behavior."

They further note that the precautions taken and medical advances associated with ECT in the 1970s make it a "vastly different" procedure from the electroshock techniques "described over the past 30 years.... The status of ECT today is similar to that of psychotropic drugs in 1957-1962." Finally, they discourage the use of the term "shock" to describe the procedure and recommend "convulsive therapy" and "ECT" — "until a better name is formulated." □

HEW restricts research on prisoners, others

Department of Health, Education and Welfare Secretary Joseph A. Califano Jr. is temporarily prohibiting the use of HEW funds for psychosurgery on prisoners, children, involuntary mental patients and legally incompetent patients. The restriction, a response to the report of the National Protection of Human Subjects of Biomedical and Behavioral Research (SN: 5/14/77, p. 314), is in effect until HEW issues proposed regulations "in the near future," Califano says.

At the same time, Califano issued new regulations to severely restrict participation of prisoners in other types of HEW-funded research. The new rules *permit* "minimal risk" studies of possible causes, effects and processes of incarceration; studies of prisons as institutional, incarcerating structures; research — approved by Califano on a case-by-case basis — on social and psychological problems such as alcoholism, drug addiction and sexual assaults; medical studies, including vaccine trials, on diseases that are more prevalent in prisons than elsewhere (such as hepatitis); research "which has the intent and reasonable probability of improving the health or well-being of the subject." Studies requiring control groups, for example, could proceed only after the approval of the Secretary. □

Lasker awards: Brain and vaccine research

The Lasker awards, the most prestigious medical research awards in the United States (as well as recognition that often helps recipients go on to win a Nobel Prize), were announced this week. The awards go to scientists who have made outstanding contributions in bacterial antigen and bacterial vaccine research and in brain nerve and brain chemistry research.

The $15,000 Albert Lasker Clinical Medical Research Award is being shared by Michael Heidelberger of New York University School of Medicine, Robert Austrian of the University of Pennsylvania School of Medicine and Emil C. Gotschlich of Rockefeller University. Heidelberger established that the antigenic material enveloping the bacteria that cause pneumonia and meningococcus meningitis are sugars, and that when these sugars are purified and injected into a person, they raise antibodies against the bacteria from whence the sugars came. Austrian used this knowledge to develop a vaccine made of pneumonia sugar antigens. The vaccine was found to be highly effective in preventing bacterial pneumonia, a feat that experimental vaccines made from whole pneumonia bacteria could never claim (SN: 12/14/74, p. 381). The vaccine was then developed by a drug company and approved by the U.S. Food and Drug Administration in 1977 for commercial use.

Gotschlich used Heidelberger's discovery to develop a vaccine that contained sugar antigens from the meningococcus bacterium. This vaccine proved to be highly effective against meningococcal meningitis (SN: 12/14/77, p. 28), and it has been used routinely since 1971 in military training centers. Meningococcal meningitis is a disease that invades the central nervous system and that can lead to neurological damage and death.

The $15,000 Albert Lasker Basic Medical Research Award is being shared by Solomon H. Snyder of Johns Hopkins University School of Medicine, Hans W. Kosterlitz of the University of Aberdeen, Scotland, and John Hughes of the Imperial College of Science and Technology in London. During the early 1970s, Snyder and his colleagues identified, and then mapped, nerve membranes that bind opiate drugs. In 1975 Kosterlitz and Hughes (who were both at the University of Aberdeen at that time) identified two peptides naturally present in the brain that bind to the nerve receptors discovered by Snyder and his coworkers. These peptides, named enkephalins, turned out to be the brain's own natural "morphine," or pain-relieving chemicals, dramatically opening both the pain research field (SN: 10/14/78, p. 266) and the

Continued on page 379