# Dialysis fails as schizophrenia treatment

A major federally funded study of hemodialysis treatment for schizophrenia provides no evidence that blood filtering is any more effective than a fake treatment, contradicting dramatic positive results reported six years ago. The results of the University of Maryland project (combined with unreported findings from two additional projects) may finally debunk the controversial idea that schizophrenia is somehow linked to a toxin coursing through the bloodstream; and they may help consign hemodialysis to a category of unfounded schizophrenia treatments — such as tooth extraction and colonic irrigation — that today remain little more than historical curiosities.

Psychiatrist William T. Carpenter Jr. and his colleagues studied 15 chronic schizophrenic patients, treating some with true dialysis and others with sham dialysis, then switching them at midpoint in the study; neither the researchers nor the patients knew who was receiving which treatment. According to Carpenter, they found "not a hint of evidence" that hemodialysis can help schizophrenics. "I believe there is no longer any basis for offering hemodialysis as a treatment for schizophrenia," he told SCIENCE NEWS. "I don't see how it could be defensible." A course of dialysis treatment — including surgery — costs about $4,000.

Carpenter's study, reported in the March 24 NEW ENGLAND JOURNAL OF MEDICINE, is one of three studies sponsored by the National Institute of Mental Health in response to an exciting 1977 report that dialysis led to dramatic improvement in a significant number of chronic schizophrenics (SN: 7/8/78, p. 29). In that uncontrolled study, conducted by University of Florida nephrologist Robert Cade and University of Louisville psychiatrist Herbert Wagemaker, patients who were extremely psychotic for years reportedly left the hospital and returned to work or school following a course of dialysis treatment.

Cade and Wagemaker even suggested how the cleansing of schizophrenics' blood might work to eliminate psychiatric symptoms. When their patients first began treatment, they said, their blood typically contained elevated levels of a peptide called leucine-endorphin, which declined to normal as dialysis continued. The report led to considerable publicity for the so-called "schizophrenic compound" and consequently, at NIMH, to numerable inquiries about the possibility of hemodialysis treatment.

According to Nina Schooler, director of psychopharmacology research at NIMH, the government has since funded two other studies like Carpenter's — one run by Wagemaker himself and the other by Hans Doerr of the University of Washington. The results, though unpublished, have been circulated in the scientific community, and neither lends support to original findings, Schooler says. And although the agency does not as a matter of policy reject any line of scientific inquiry, Schooler adds, it is highly unlikely that additional hemodialysis research will be approved for funding by the government's scientific advisers.

Wagemaker, in fact, has had his most recent grant application rejected. He has been unable to duplicate the evidence of elevated endorphins in schizophrenics and while he concedes that his latest clinical results are not as strong as those reported in 1977, he says he is still getting positive results. The major problem with all such research, including his own and Carpenter's, he says, is that scientists are unable to identify a homogeneous subgroup of patients; 30 percent to 40 percent of all schizophrenics would probably respond to dialysis, Wagemaker claims, but the inability to isolate that group inevitably skews all research results. Wagemaker says he is disappointed by the mixed results of recent research, but he remains convinced by the lasting recoveries of his patients. "Something is going on," he concludes. "I just wish I knew what it was."

*—W. Herbert*

# Alcohol damage at time of conception

Alcohol's detrimental effects on a developing embryo may occur earlier and be more harmful than previously recognized, according to a recent animal study. Alcohol-containing solutions drunk by female mice about the time of conception produced chromosomal abnormalities of a type that leads to spontaneous abortions.

In the mouse study, conducted at the University of Cambridge in England, about 15 percent of 180 fertilized eggs either lacked one or two chromosomes or contained an extra chromosome. The female mice had each drunk 1 milliliter of a 10- to 15-percent ethanol solution. In the March 17 NATURE, M.H. Kaufman reports that the abnormality occurs among the chromosomes derived from the mother.

The abnormality seems to arise from incorrect segregation of chromosomes while they are completing the second meitotic division, the chromosome separation that occurs shortly after the egg is stimulated by fertilization. Kaufman says the alcohol appears to act on the cell spindle, the apparatus that distributes chromosomes during cell division. Other agents that disrupt the spindle are known to cause abnormal chromosome segregation.

Recent studies of human spontaneous abortions have implicated maternal intake of alcohol during early pregnancy. However, drinking was associated with spontaneous abortion of fetuses with the normal number and appearance of chromosomes, says Dorothy Warburton of Columbia College of Physicians and Surgeons in New York City. Chromosomal abnormality occurring near the time of conception occurs in about half the human spontaneous abortions, both Warburton and Kaufman say.

While Kaufman says caution should be exercised in extrapolating from the mouse studies, he warns "the results draw attention to the potential danger to the conceptus of a single episode of heavy drinking by the mother at about the time of conception."

*— J.A. Miller*

# High court requires generic-drug tests

All generic drugs do not necessarily match the safety and efficacy of their name-brand "equivalents." And that's part of the reason why the Supreme Court unanimously overturned a lower-court ruling March 22; in so doing, it prohibited sale of prescription drugs that copy the "active ingredients" (those that supposedly cure, mitigate, treat or prevent disease or its symptoms) of already approved drugs, but substitute different inactive ingredients (such as binders, colorings or encapsulating materials) unless each of these so-called copycat drugs has received Food and Drug Administration approval. FDA's approval requires that safety and efficacy of a drug be demonstrated in laboratory testing.

Though inactive ingredients (often 90 percent or more of a drug product) may not harm a patient on their own, they could affect the active ingredients' delivery to a targeted organ or even tie up some of the active ingredients so they never get delivered fully. If delivery of active ingredients occurs too rapidly, a patient could receive an overdose, or the ingredients could enter the digestive tract where they can't offer the most benefit. Slow delivery could render a drug ineffective.

The current suit was brought by the Justice Department against Generix Drug Corp., a distributor of generic drugs manufactured by other firms. Though most generic drugs have been tested and have received FDA's new-drug approvals, six Generix products had not.

An appeals court ruled that new-drug approval laws pertain only to the introduction of new combinations of active ingredients. But in his Supreme Court opinion, Justice John Paul Stevens wrote, "That proposition is untenable." For corroboration, he noted that, legally, a drug is adulterated if a coloring additive is unsafe, and "misbranded" if its new-drug application does not list all components, active and inactive.

*—J. Raloff*