of Yale-New Haven Hospital between 1968 and 1977. The study focused on electroencephalograph (EEG) and IQ measures of 22 patients who had been the child or younger member of an incestuous relationship.

The study was undertaken because Davies and his colleagues had been "struck by EEG abnormalities" in several patients in treatment who had been incest victims, he said in an interview. "Although much has been written about the psychodynamics and family dynamics of the individual involved in incestuous relationships, there has been little documentation of neuropsychological factors that may play a role," he explains.

Of the 22 former incest victims, Davies found that 17 had abnormal EEG's (which were taken routinely after the patient's admission); of these, six suffered actual seizures. This 77 percent incidence compares with a 20 percent incidence of abnormal EEG's reported in a 1965 study of *all* patients admitted to the hospital unit, and with estimates of from 5 percent to 30 percent among the general population.

In addition, of the 13 study subjects who underwent psychological testing, five showed "dull normal" IQ scores and seven exhibited problems in perceptual motor tasks, concrete thinking and word-finding. In addition, impulsive behavior was reported in 18 of the 22 patients, and depersonalization (feelings of unreality about oneself or surroundings) in 12.

These results, Davies says, suggest that "these neuropsychiatric handicaps create a vulnerability that enhances inappropriate relationships within a family and makes it more difficult to resist an incestuous relationship." He notes that such EEG abnormalities "are frequently associated with disturbances in cerebral mechanisms in the temporal and limbic regions which may mediate identity formation and the sense of personal boundaries." This type of problem may translate into a child's increased demands for closeness, which "in susceptible family constellations ... may provide added stimulus for the breakdown of the incest taboo."

The fact that most of the patients tested were admitted for psychosis or depression should not have influenced their EEG or IQ scores, Davies says, although he adds that "some" brain wave abnormalities have been associated with schizophrenia. He also notes that nearly all the subjects came from middle class New Haven families and were not subject to other forms of abuse, as has been found with incest victims from other backgrounds, and which conceivably might contribute to neurological deficiencies.

"We're not saying the kids are at fault, or the adults not at fault," he says. And it is "unlikely" that such factors "are either necessary or sufficient for incest to occur," Davies says. But he adds that "they may underlie and augment" other family problems that contribute to incest. □

Negative emotions and cancer survival

"Let it all hang out," may be good advice as far as cancer survival is concerned. A half-dozen studies conducted by various investigators from the 1950s to mid 1970s showed that cancer patients who are able to externalize negative emotions live longer than do cancer patients who suppress their feelings. And now these findings have been confirmed one more time by Leonard R. Derogatis and his co-workers at Johns Hopkins University School of Medicine in Baltimore. They report their findings in the Oct. 5 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Derogatis and his team studied 35 women receiving drug treatment for spreading breast cancer. Each patient completed self-report inventories on psychological symptoms and moods. Each patient was also analyzed psychologically and had her medical history, such as previous therapies, sites of spreading cancer tissue and current response to therapy, recorded. The patients were then followed up in subsequent months to record their rates of survival. Whereas 13 of the patients lived a mean of only 8.6 months, 22 had survived, as of July 1978, a mean of 22.8 months — a highly significant difference. So the researchers labeled the former patients short-term survivors and the latter patients long-term survivors and then compared the results of each group's psychological tests and interviews.

Derogatis and co-workers report that long-term survivors had revealed, on the symptoms test, significantly higher levels of anxiety, hostility, alienation and other negative emotions than had short-term survivors. Similarly, long-term survivors had manifested significantly more negative moods than had short-term survivors. As for the results of psychological analysis, the long-term survivors had been found to possess significantly more negative attitudes toward their illnesses, their physicians and their treatments than had the short-term survivors. Derogatis and his colleagues conclude that cancer patients whose coping styles facilitate external, conscious expression of negative emotions and psychological distress appear to survive longer than do patients whose coping styles involve suppression or denial of psychological distress.

For this conclusion to be valid, of course, it is necessary to rule out any possible physical explanation for why certain of the patients survived a much shorter period than did others. Derogatis and his team have attempted to do so. They examined the medical histories of their subjects and were not able to find any statistically significant differences in physical characteristics between long- and short-term survivors. What's more, at the time of their psychological testing, the two groups did not show any significantly different response to antitumor therapy. In fact, the short-term survival group had been getting drug therapy somewhat longer than had the long-term survival group — exposure that should have increased survival, not shortened it.

The crucial question now is how expression of negative emotions physiologically boosts survival among cancer patients. It is well established that hormones influence tumor growth, and links have been made between psychological factors and hormone status. So it is conceivable that venting negative emotions could alter hormone levels, which in turn could cause a breast tumor to regress, particularly if therapy was applied at the same time. □

Backpack planned for shuttle tile repair

One of the problems causing delays and increased costs during development of the space shuttle has been with the layer of heat-resistant tiles designed to protect the craft from the high temperatures of reentry through earth's atmosphere. If individual tiles become detached or severely damaged during the launch ascent (some have come off while the shuttle was being transported through the air atop its 747 jet carrier), the greater heat of reentry could cause serious problems by burning through the exposed aluminum skin underneath. The National Aeronautics and Space Administration thus announced last week that it is hastening development of a backpack-type maneuvering unit so that shuttle astronauts will be able to move around their vehicle in orbit to inspect and repair damaged tiles.

The device, an outgrowth of earlier versions tested in the Gemini and Skylab programs, is being planned for a variety of shuttle tasks—deploying payloads, checking instruments, etc. — but its development is now being accelerated by "several

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