
A genetic marker for ulcers

Evidence that genetic factors play a role in development of ulcers of the small intestine, the most common type of gastrointestinal ulcer today, is not new. In 1966 such ulcers were found to be especially prevalent among first-degree relatives of small intestine ulcer victims. In 1972, a greater concordance of such ulcers was found among identical twins than among fraternal twins, implying a genetic input. However, the mode of inheritance of the disease has remained a mystery.

Now, a group of scientists has identified at least one strong genetic factor (marker) for ulcers of the small intestine. It is an elevated level of the chemical pepsinogen in the bloodstream.

Past studies have suggested that the blood level of pepsinogen might be a possible genetic factor underlying ulcers of the small intestine since elevated levels of it have been noted in patients with small intestine ulcers and in persons at risk of getting such ulcers. In addition, pepsinogen is a precursor of the gastric enzyme pepsin, and excessive secretion of pepsin appears to help set the stage for an ulcer of the small intestine.

Jerome I. Rotter of Harbor General Hospital in Torrance, Calif., and his team have studied levels of pepsinogen in two families with a prominent history of small intestine ulcers.

The pedigree of family one consisted of 33 family members spread across three generations. The pedigree of family two consisted of 94 members spread across four generations. Rotter and his colleagues used radioimmunoassays to determine the range of pepsinogen in the bloodstream, compared those levels with a normal range already established for healthy subjects and then examined the pattern of elevated and normal levels in the two family trees to see whether levels had been passed from one generation to the next according to the laws of Mendelian inheritance.

As they report in the Jan. 11 *NEW ENGLAND JOURNAL OF MEDICINE*, in each generation of both families about 50 percent of the offspring of persons with elevated pepsinogen levels had high pepsinogen levels; all offspring of individuals with normal pepsinogen levels also had normal levels, and there was male-to-male transmission of the high levels. These findings, the researchers explain, satisfy criteria for autosomal dominant inheritance of pepsinogen. In other words, individuals with such a genetic predisposition would always pass it on to their children whether they were male or female. What's more, only those subjects with elevated pepsinogen levels had ulcers of the small intestine. This finding, coupled with the finding that high pepsinogen levels can be

passed on as an autosomal dominant trait, are strong evidence that high pepsinogen levels are a genetic factor (marker) underlying ulcers of the small intestine.

Not all ulcers of the small intestine can be explained by inherited high levels of pepsinogen, though. A previous study has shown that one-third of patients hospitalized with an ulcer of the small intestine had normal blood levels of pepsinogen. Thus there may be other genetic factors predisposing toward small intestine ulcers, although such factors have not yet been identified. In addition, even in those persons with high levels of pepsinogen, pepsinogen alone is not sufficient to trigger an ulcer since only 40 percent of the subjects in this study who had elevated levels of pepsinogen also had an ulcer. □

Study in China?

Applications for three programs that will offer up to 65 United States citizens grants to study in the People's Republic of China will be accepted through February 9, according to the Committee on Scholarly Communication with the People's Republic of China (CSCPRC).

A one-year, federally funded Advanced Training Program, open to graduate students and recent advanced-degree recipients, will begin in September. Eligibility includes training for three years in modern Chinese although natural scientists with less will be considered.

Two research programs offer grants to study for three months to a year, beginning in June (social-studies and humanities researchers must stay at least six months). Federally funded, the first is open to scholars at all levels. The other, funded and administered by CSCPRC, is open only to those holding positions as associate professors and above with "distinguished careers as research scholars."

For details, contact the Committee at 2101 Constitution Avenue, NW, Washington, D.C. 20418. Sponsored by the National Academy of Sciences, the Social Science Research Council and the American Council of Learned Societies, CSCPRC has run short-term exchanges with the PRC since 1972. □

Birthing drugs and babies

Drugs to relieve pain and to induce drowsiness or relaxation during childbirth can have lasting effects on a baby's behavior and muscular functions, according to Sarah H. Broman of the National Institute of Neurological and Communicative Disorders and Stroke and Yvonne Brackbill of the University of Florida. Their seven-year study of 3,528 infants showed that even a year after birth, many children born to mothers given drugs were slow to sit, stand and walk. Unpublished results indicated that by age seven, some lagged in

language and learning skills, including perception, memory and judgment, they said. And contrary to general belief, they said, the use of anesthetics and other drugs during delivery is increasing. No severe disabilities were found, but the results support a more cautious use of drugs during childbirth, they said, and discussions with women before delivery of possible postnatal effects. □

A brewing concern

Most German beers, and perhaps American brews too, contain trace quantities of dimethyl nitrosamine — a known animal carcinogen. The German Cancer Research Center in Heidelberg announced last week that it had tested 158 beers in a two-year study. Two-thirds contained the chemical with an average contamination of 1.3 parts per billion, according to Larry Keefer of the U.S. National Cancer Institute. (Results were weighted to reflect market sales of tested brands.) One type of smoked beer, however, contained concentrations in the 68 ppb range, Keefer said. Details will appear in an upcoming issue of *FOOD AND COSMETICS TOXICOLOGY*.

The Germans told Keefer that they figure beer constitutes 25 percent by weight of the German diet, and that as such would contribute 64 percent of the total 1.1 micrograms of nitrosamines Germans ingest daily. Keefer cautioned, however, that there "is no scientifically defensible conclusion you can make" from the findings since there are virtually no data on human low-dose effects.

The chemical forms when nitric oxide contacts beer malt during a drying process, according to the Germans. German brewers have asked the Munich Technological University to investigate brewing changes to eliminate the nitrosamine-forming process. American brewers, learning of the German findings last summer, are already engaged in testing their own products. □

Inflationary pressure?

A suit was brought last week in U.S. District Court to prevent the Secretary of the Interior from considering comments on strip-mine regulations submitted after the hearing record closed November 27. The Natural Resources Defense Council, the National Wildlife Federation and the Council of Southern Mountains fear that the President's Council of Economic Advisors is exerting pressure to bend potentially inflationary rules. Interior department officials admit meeting with CEA representatives, but disclaim making changes. The suit raises the constitutional question of whether presidential advisors can covertly influence laws that an agency has been instructed by Congress to write. □