

Cancer detection: Call for fewer tests

In view of the exorbitant cost of health care these days, the American Cancer Society has some good news: You don't need as many tests for early detection of cancer as was formerly believed. The ACS bases its new recommendations on updated information about the development of various cancers and the relative merits or drawbacks of detection procedures.

The ACS used to recommend that persons over age 40 receive an instrument probe for colon-rectal cancer annually. It has now changed that recommendation to "over age 50." However, an annual digital rectal exam is still urged from age 40 on.

The ACS used to advise all women to get annual Pap smears for cervical cancer. It now advises that women over age 20 and women under age 20 who are sexually active have the smear at least once every three years, once they have had two negative tests a year apart. As for the early detection of breast cancer, the ACS urges that all women past age 20 do a breast self-exam once a month; that women ages 20 to 40 have a breast exam by a physician every three years; that women over age 40

have their breasts examined by a physician every year; that women over age 50 have annual mammography; and that women between the ages of 40 and 50 have mammography if their physicians recommend it specifically for them.

The ACS formerly advised chest X-rays for heavy smokers and others considered a high risk for lung cancer. It no longer does so, nor does it recommend a sputum test for early lung cancer detection. The reason, it explains, is that there is no evidence in published studies showing that such tests have reduced deaths from lung cancer.

The authors of one of these studies, however, take exception to the ACS conclusion. In 1974 R. Robinson Baker and colleagues at Johns Hopkins Medical Institutions in Baltimore began screening (with sputum tests and chest X-rays) 10,000 male smokers over age 45. Although the survival rate of lung cancer patients detected with these tests is currently comparable to that of lung cancer patients who did not receive a chest X-ray or sputum test, the researchers have reason to believe that the former's survival rate will be superior two years from now. Thus they find the current recommendation by the ACS to do away with chest X-rays and sputum tests for lung cancer premature. □

Breast cancer gene identified

Physicians have been reporting families with a high incidence of breast cancer for more than a century now. But only recently have scientists started linking some of these breast cancer cases with a genetic susceptibility to breast cancer.

Specifically, a Texas researcher named David Anderson demonstrated a decade ago that a woman's risk of breast cancer is increased if she has several close relatives with the disease, especially if the relatives have the disease early in life or if they have it in both breasts. But Anderson was not able to show with his particular study design whether that risk is genetic or perhaps due to environmental factors and cultural practices shared by families. Now, evidence that breast cancer clustering in families is sometimes inherited has finally been obtained by Mary-Claire King, a geneticist at the University of California School of Public Health at Berkeley, and her colleagues. As King reported at the American Cancer Society's 22nd Science Writers' Seminar in Daytona Beach, Florida, this week, she and her team have obtained the first evidence for a gene that increases susceptibility to breast cancer in women.

King and her co-workers studied families (comprising 150 persons extending over four or five generations) afflicted with 10 to 20 cases of breast cancer each. By using statistical, epidemiological and genetic tools, the researchers were able to determine that the incidence of breast cancer in 13 of the families was consistently associated with the presence of a particular enzyme (glutamate-pyruvate transaminase). Moreover, they determined that the gene for this enzyme is probably located on chromosome number 10. Thus they were able to conclude that breast cancer susceptibility in these families was due not to environmental or cultural practices but to some gene linked with the glutamate-pyruvate transaminase gene on chromosome number 10.

"The ultimate goal," King explained to SCIENCE NEWS, "will be to isolate the product of the gene and to find out what it does. We don't know that yet." And once they have the product, she and her colleagues might be able to determine how it allows breast cancer to occur — for instance, by letting a cancer virus integrate itself into the genes of breast cancer cells.

Data from the other families that King and her team studied suggest that there are probably other breast cancer susceptibility genes as well as the one they have identified, and that while one gene might run in one family, another might run in another. Once a number of breast cancer susceptibility genes have been identified, scientists might then be able to test women routinely for them. □

A first in monumental architecture



About 7,500 B.C., it appears the people of Cayonu wanted somewhere to go. It may have been a church, a political forum or a social structure, but the result was what archaeologists are calling "the earliest known monumental building." First excavated in the 1960s, the remains of the building, in southeastern Turkey, have just recently been radiocarbon dated by investigators at the University of Chicago and Istanbul University. The Cayonu villagers lived in small, round huts — meaning, according to the archaeologists, that this building was not a domestic structure but more likely an aesthetic and architectural expression of cultural and social evolution. The remains indicate a large, single room with lower walls of stone, interior stone pilasters facing upright stone slabs used as columns, and a carefully laid flagstone floor (far right). One or two centuries later, the plan was completed on an even larger scale in another part of the village. The primary researchers — Robert Braidwood of the University of Chicago, Halet Cambel of Istanbul University and Wulf Schirmer of the Institute for Architectural History in Karlsruhe, Germany — believe the Cayonu people were unique in their interest in architecture at that time.