

High Cholesterol = High Cancer Risk?

Some epidemiologic studies have shown an association between a high-fat diet and subsequent development of cancer, and this along with the heart disease link is why many doctors recommend that people lower their fat and cholesterol intake. But other studies have failed to show the cancer connection, and several have even found a link between *low* blood cholesterol levels and cancer.

Now, three new studies, two in Europe and one in the United States, have addressed the issue. They will no doubt add to the data base, but they won't necessarily answer the question of what to eat. The European studies strengthen the low-fat diet suggestion: They report an association between high blood cholesterol levels and an increased risk of colorectal cancer. The U.S. work shows no strong relationship between dietary fat and breast cancer.

While the European findings are in agreement with some previous studies, they run counter to others, including the Framingham (Mass.) heart study (SN: 1/24/81, p.55), that link low blood cholesterol levels to a higher incidence of colorectal cancer. In one of the newly reported studies, Sven A. Törnberg and his colleagues at the Karolinska Hospital in Stockholm, Sweden, analyzed data from more than 92,000 people over a 15-year period. Blood levels of cholesterol and cholesterol-laden lipoproteins were measured in the mid-1960s, and subsequent cancer was monitored.

The researchers found a statistically significant correlation between high cholesterol and the development of rectal cancer in men: The cancer risk was 65 percent higher among the group with the top 20 percent of cholesterol levels compared with men in the bottom 20 percent. The data also pointed, although not as strongly, to a direct cancer-cholesterol relationship in men with colon cancer and in women with colon or rectal cancer.

Gerd Alexander Mannes and his colleagues at the University of Munich in West Germany looked at people with colorectal adenomas, growths that are thought to be precancerous. When they compared blood cholesterol levels in these patients with the results obtained in the examinations of 842 people whose colons were checked for adenomas, they found "a small positive association." After adjusting for age and relative obesity, both of which increase cholesterol levels, the researchers determined that people who had the top 20 percent of cholesterol levels were twice as likely to have adenomas as those in the bottom 20 percent.

The association between high cho-

lesterol and cancer could be an indirect one, both groups suggest in the Dec. 25 NEW ENGLAND JOURNAL OF MEDICINE. High blood cholesterol levels reflect a diet high in saturated fats, they say, and the higher cancer rate may be due to the production of carcinogens by fat metabolism.

The U.S. National Cancer Institute (NCI) recommends that Americans reduce their intake of saturated fat and cholesterol. Peter Greenwald, director of the division of cancer prevention at NCI, says the current reports "are very consistent with what we're saying." Cutting down on saturated fat and cholesterol "is good for both heart disease and cancer."

Greenwald says studies that showed a link between low cholesterol levels and colorectal cancer were not convincing in this respect. Many of them were designed to study heart disease incidence rather than cancer, he says, and the inverse relationship disappeared when data from people who developed cancer within two years were excluded. The disappearance could mean that the precancerous state had lowered their cholesterol levels and created a misleading connection, Greenwald observes.

But Paul Sorlie of the National Heart, Lung, and Blood Institute, one of the researchers who analyzed the Framingham data, said after a preliminary look at the reports that the Swedish study may have

missed the low-cholesterol-cancer connection because the lowest cholesterol levels in the study group were higher than those in Framingham and elsewhere. "It's at the lower cholesterol levels that you see a higher risk," he says.

The inconsistency at the other end of the scale — why the Framingham data and other studies revealed no increased risk with increased cholesterol levels — is at the moment unexplainable, he says. "I think it's still moot. It could be methodology, or it could be some difference between the populations, like lifestyle, genetics or nutrition."

The breast cancer study ends up in the middle ground, with dietary fat intake showing no effect on the development of breast cancer. Harvard University researchers, led by Walter C. Willett, report in the Jan. 1 NEW ENGLAND JOURNAL OF MEDICINE on their study of nearly 90,000 female registered nurses who were questioned about their eating habits.

During a four-year prospective study, 601 of them were diagnosed with breast cancer; an evaluation of the incidence among women in the top 20 percent of fat intake compared with the lowest 20 percent showed "no evidence of a positive relation." The finding could be due to a true lack of effect, or an effect could take longer than four years to show up, the authors suggest.

— J. Silberner

True ZITs: Can such things be?

When observers discovered the cosmic background of microwave radio radiation 20 years ago, they were happy with its apparent smooth isotropy. In any direction they looked, they saw radiation of the same temperature, and that was good because they believed that the universe was homogeneous and isotropic, and so the microwave background, which comes down to us undisturbed from early times, should have been smooth.

Now, observers would like to find minute fluctuations in the temperature of the background radiation. If they don't eventually find them, a good deal of present cosmological theory will go overboard.

The good news is that scientists have reported three measurements that could be one sort of the desired anisotropies. More work is necessary to find out if they are the real things, but one of the experts in the field, David Wilkinson of Princeton (N.J.) University, comments: "It smells as though we're getting close to anisotropy, close to a real detection."

In general, observers distinguish three size scales of temperature fluctuation in

the background radiation. One refers to the present time, and two refer to distant epochs in the past. The large scale covers an area in the sky 90° across or greater, with the background slightly warmer over one area of that size and slightly cooler over another. This scale refers to the present time, and an anisotropy on this scale, the "dipole anisotropy," has been known for several years. Astronomers take it as the result of a motion of our galaxy toward the galaxies in the Virgo cluster.

The smallest scale, fluctuations around a minute of arc in extent, would result from fluctuations in the density of matter in the universe that occurred at the very beginning and might have been the seed around which galaxies and clusters of galaxies formed. No hint of these has been seen.

The present tentative results concern the middle range, areas a few degrees across. At the recent 13th Texas Symposium on Relativistic Astrophysics held in Chicago, three groups reported apparent fluctuations of temperature in areas 5° or 8° across. They are Edward