

Beware of hot spots in arteries

Heart attacks come as a tragic surprise in part because doctors cannot pinpoint when or where heart-stopping clots will form. Anticipating these clots and preventing them from choking off arteries may someday be as simple—or as complex—as taking an artery's temperature.

S. Ward Casscells and his colleagues at the University of Texas-Houston Medical School report in the May 25 *LANCET* that by measuring "hot spots" in artery walls, they can zero in on weaknesses that may predispose people to heart attacks. Such signs apparently presage two-thirds of all heart attacks, and recognizing the warnings may enable doctors to intervene and prevent some of the tragedies.

Casscells believes that the hot spots arise through inflammation within the plaque, a mixture of cells and globs of cholesterol and other blood fats that sticks to artery walls and hinders blood flow. Such inflamed plaque is unstable and prone to burst. When plaque ruptures, blood clots form to staunch the bleeding and heal the wound in the blood vessel wall. But the clots can also block blood flow to the heart.

Just as the body responds to harm by attempting to kill germs with a slow burn, the inflammation generates heat. The researchers figured that stable plaque, possessing no inflamed cells, would be cooler than plaque with inflammatory deposits, and they theorized that this distinction might offer a way to identify the most harmful plaque.

Casscells and his colleagues identified the hot spots by applying temperature-sensitive probes to fresh carotid artery tissue removed during bypass operations. They found that nearly 40 percent of the plaque samples were measurably warmer than the others and that the warmer samples were indeed the ones that contained inflammatory cells. The researchers are trying to develop a technique for making similar measurements inside the body.

By treating plaque-clogged arteries with drugs that reduce inflammation, the researchers say, doctors may someday be able to prevent them from rupturing and producing the blood clots that trigger heart attacks.

Mad cows and sick monkeys

The emergence of 10 unusual cases of Creutzfeldt-Jakob disease (CJD) in the United Kingdom in April alarmed Europe and electrified the world's scientific community. It appeared that all 10 patients had contracted what scientists believe is a newly recognized human variant of "mad cow" disease (SN: 4/13/96, p. 228).

Now, two French scientists report in the June 27 *NATURE* the first direct evidence of a link between mad cow disease and CJD. They have found provocative similarities between brain lesions in monkeys injected with brain tissue from affected cows and those in humans with the new form of CJD.

The findings suggest that mad cow disease can be transmitted to humans; however, the researchers stress that their work, though suggestive, does not provide proof of the link.

The study began in 1991, when Corinne Lasmézas and Jean-Phillipe Deslys of the French Atomic Energy Commission and that nation's Army Health Service injected crushed brain tissue from diseased cows into the brains of one newborn and two adult rhesus monkeys.

Three years later, all three monkeys developed the classic symptoms of the human version of mad cow disease, including anxiety and depression. After the monkeys died, necropsies revealed that all three had identical types of brain lesions. A comparison with the lesions found in the 10 recently described British victims showed that the brain abnormalities were "strikingly" similar, suggesting that the mad cow agent causes disease in humans.

Controversy erupts over climate report

In a war over words, critics of an influential United Nations' climate report have charged its authors with "scientific cleansing"—altering the text to downplay uncertainties about humanity's influence on climate. The scientists who wrote the document counter that the critics have misrepresented the situation to divert attention from the report's basic conclusion, approved by 96 countries, that "the balance of evidence suggests that there is a discernible human influence on global climate."

The skirmish centers on chapter 8 of the 1995 scientific assessment by the Intergovernmental Panel on Climate Change (IPCC), published last month by Cambridge University Press. This chapter, written by 4 scientists, with contributions by 32 others, is titled "Detection of climate change and attribution of causes."

The Global Climate Coalition, a lobbying group funded in part by the energy, transportation, and manufacturing industries, argues that the authors of chapter 8 altered the text improperly after representatives of the IPCC had accepted the document at a meeting in Madrid in November 1995. "There was a total breakdown of IPCC's agreed procedure for preparation and publication of this assessment report," says John Shlaes, executive director of the Global Climate Coalition in Washington, D.C.

Leaders of the IPCC disagree. In a letter to the *WALL STREET JOURNAL* on June 25, Bert Bolin, chairman of the IPCC, and the two cochairmen of the science panel assert that "in accordance with IPCC procedures, the changes to the draft of Chapter 8 were under the full scientific control of its convening lead author, Benjamin D. Santer. No one could have been more thorough and honest in undertaking that task."

Santer, an atmospheric researcher at Lawrence Livermore (Calif.) National Laboratory, says that he made the changes to reflect comments and criticisms he received in Madrid, as well as to assess the science better.

The Global Climate Coalition argues that these changes eliminate or diminish caveats regarding studies linking human activities with changes in climate. The published chapter, for instance, lacks a concluding summary—present in an earlier draft—that discussed scientific uncertainties.

Santer says he dropped the section after receiving criticism in Madrid that chapter 8 was the only one with a concluding summary in addition to the summary at the beginning, which all the chapters had. Half of the material in the excised conclusion now appears in the body of the chapter, which devotes roughly 20 percent of its total space to the issue of uncertainties, Santer says.

"This issue of cleansing somehow suggests that [the uncertainties] have been purged from the chapter. That's ridiculous," he says.

The Global Climate Coalition's charges have received widespread attention, especially among global warming skeptics who disagree with the IPCC's main conclusions, which remain unchanged in the final report. Among those skeptics is Frederick Seitz, past president of the National Academy of Sciences and chairman of the George C. Marshall Institute, a Washington, D.C.-based conservative think tank. In an essay in the June 12 *WALL STREET JOURNAL*, Seitz wrote that "it would be best to abandon the entire IPCC process, or at least that part that is concerned with the scientific evidence on climate change."

Santer responded in a letter in the June 25 *WALL STREET JOURNAL*, saying that Seitz is not a climate scientist, was not involved in putting together the IPCC report, did not attend the Madrid meeting, and did not attempt to obtain an explanation for the changes. Santer's letter was signed by 40 scientists, all of whom were contributors to the 1995 IPCC science report.