Research Update

Elderly most affected by seasonal variation in deaths due to MI, stroke

The very elderly are hit hardest by seasonal increases in deaths due to acute myocardial infarctions and stroke, new research indicates.

Besides confirming previous studies' findings that people are more likely to die of heart attack or stroke during the winter, Dr. Tej Sheth of the Hamilton General Hospital and colleagues identified a pronounced age effect in the seasonal variations in death rates (*J Am Coll Cardiol* 1999; 33:1916-9), based on a huge database of deaths in Canada. Seniors over age 85 had up to 16% higher rates of MI deaths in winter than in summer, and 19% higher stroke rates.

MI deaths were highest in January and lowest in September. The seasonal variation in MI deaths (winter versus summer) climbed with age: 5.8% in the under-65 age group, 8.3% in the 65-to-74 group, 13.4% in 75-to-84 group and 15.8% for people over 85.

Similarly, stroke mortality peaked in January and was lowest in September. As with MI, seasonal variation in stroke mortality also increased with age. Researchers identified no seasonal variation in people under age 65, but an 11.6% variation in the 65-to-74 group, 15.2% in the 75-to-84 group and 19.3% in those over age 85.

Sheth believes winter-related changes in clotting, immune system activity and blood pressure — all factors that make atherosclerotic plaques unstable and vulnerable to rupture — may be more pronounced in the elderly and lead to a higher incidence of MI. The limited data available suggest that winter's colder temperatures trigger these physiologic changes. "This is only a hypothesis, though," says Sheth. "We will need to test it in careful studies to confirm whether this is the case."

The Canadian–American research team analysed seasonal variations by month and for the 4 seasons. For each of 4 age groups, scientists labelled the magnitude of seasonal variation as the difference in mortality between seasons with highest and lowest frequency of deaths. Researchers looked at 300 000 deaths from the Canadian Mortality Database for the years 1980 to 1982 and 1990 to 1992. It is the largest North American study to date on seasonal mortality.

The findings, says Sheth, open up a new avenue for research into the prevention of cardiovascular disease. — *Greg Basky*, Saskatoon

Promising new therapy for cancer

Cancer therapy could well be revolutionized if the potent antitumour activity of a new molecule works as well in humans as it does in mice. The startling findings in mouse models of cancer were published in a recent issue of *Science* (1999;285:1926-8, www.sciencemag.org).

The research builds on the pioneering work of Judah Folkman, a coauthor of the report. He made headlines when he proposed that cancer could be reversed by cutting off the blood vessels that supply tumours and allow them to grow. The growth of new blood vessels (angiogenesis) occurs only in a few physiologic conditions, including tumour growth and pregnancy. Targeting angiogenesis could lead to new therapies that would be effective in all types of cancer. Folkman's research has spawned a huge effort in this direction.

In this experiment, scientists investigated antithrombin, a serine protease inhibitor (or "serpin"), whose usual job in the body is to inhibit clotting enzymes. By making a small change to the molecule, the researchers switched its role to inhibiting angiogenesis and tumour growth. The altered antithrombin acted to reverse angiogenesis and tumours in mice with cancer. The question for future researchers is whether it can do the same thing in humans safely and effectively.

Organs

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Canadians to sign donor cards. "Governments should recognize the critical role of social attitudes in increasing organ donation and share the costs of a collaborative ongoing social-marketing strategy that crosses all societal groups to assist individuals in making personal decisions about organ and tissue donation."

Federal Health Minister Allan Rock described organ-related decisions as "very personal. As governments, our role is to create a comprehensive system that enables Canadians to make their wishes known and ensures that those in need can benefit from the donations that are made." More information is available at www.hc-sc.gc.ca/english/archives/releases/99picebk5.htm.