

## Anticoagulant drug lowers stroke risk

People with atrial fibrillation — an irregular beating pattern of the heart's upper chambers that often develops with age — experience five times the risk of stroke as individuals with normally beating hearts. A new study now confirms that the anticoagulant warfarin can dramatically lower this risk.

The study — conducted by more than 100 physicians at 16 Department of Veterans Affairs medical centers across the United States — is the fifth to demonstrate warfarin's antistroke benefits. Some of the previous studies also suggested that a daily dose of aspirin can reduce stroke risk among patients with atrial fibrillation (SN: 3/24/90, p.180).

In the new study, reported in the Nov. 12 *NEW ENGLAND JOURNAL OF MEDICINE*, physicians administered either warfarin or a placebo to 571 men between the ages of 60 and 74. Forty-six of the men had already suffered a stroke.

Overall, the researchers found that warfarin treatment reduced the men's stroke risk by 79 percent. Moreover, they found that the drug was just as effective among men over age 70 as among the younger men. Warfarin also appeared to benefit patients who had experienced a previous stroke, although the researchers caution that the number of prior stroke sufferers was too small to support a definitive conclusion.

The researchers suggest that warfarin works by preventing the formation of blood clots within the heart's atrial chambers. Atrial fibrillation fosters such clotting by allowing blood to pool in the heart.

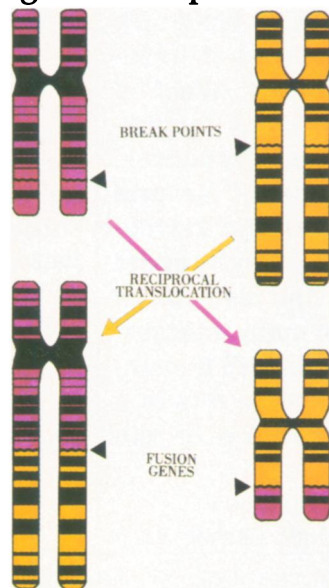
"For the present, all patients with chronic atrial fibrillation should be considered candidates for long-term low-intensity warfarin therapy," cardiologist Daniel E. Singer of the Massachusetts General Hospital in Boston concludes in an editorial accompanying the new report.

## Childhood leukemia: A genetic swap meet

Many types of leukemia, cancer of the white blood cells, are caused when pieces of two chromosomes break off and exchange places within the cells, prompting their abnormal growth. Researchers have now identified one of the genes involved in the chromosome swap that results in acute lymphocytic leukemia (ALL), the most common form of leukemia among children.

Carlo M. Croce and colleagues at Jefferson Medical College in Philadelphia have determined that the ALL chromosome swap, or translocation, splices a newly identified gene onto a gene with unknown function. The researchers report in the Nov. 13 *CELL* that the new gene resembles the fruit fly gene for a transcription factor, which controls the activity of other genes.

Croce's team suggests that the translocation creates a "fusion" transcription factor that may cause leukemia either by activating the wrong genes or preventing the normal transcription factor from activating the right genes.



When two chromosomes (top) break and exchange pieces (bottom), the reciprocal translocation creates so-called fusion genes, each of which contains parts of two different genes. Sometimes the fusion genes direct the production of proteins that can cause cells to turn cancerous.

Jefferson Medical College

## Caffeine and hypertension: A bad brew?

People from Seattle to Kennebunkport participate in the daily rites of coffee and aerobic exercise. For most, the resulting temporary rise in blood pressure poses little health risk. But for people with even mild hypertension, it seems safer to nix the mix of caffeine and vigorous exercise, a new study suggests.

Bong Hee Sung, a hypertension researcher at the State University of New York at Buffalo, measured the cardiovascular effects of caffeine and exercise on men with normal and elevated blood pressure. The results of her study suggest that caffeine and exercise in combination may exert a more deleterious effect on hypertensives than on people with normal blood pressure.

Sung measured the heart rate and blood pressure of men who exercised after ingesting either a placebo or the caffeine equivalent of three cups of coffee. She found that hypertensives experienced much greater increases in heart rate on caffeine than on placebo, whereas the heart rates of men with normal blood pressure went up the same amount regardless of which substance they downed.

Systolic blood pressure, which reflects the force exerted by the contracting heart, rose in both groups when they exercised after taking caffeine. However, only the hypertensives showed a rise in diastolic pressure — the pressure on the blood vessels when the heart muscles are relaxed — when exercising under the influence of caffeine.

The increases in systolic and diastolic blood pressures attributable to caffeine averaged about 10 percent. Sung argues that such incremental boosts increase the damage done to the cardiovascular systems of people who already have higher-than-normal blood pressure.

"Until further studies show that antihypertension medications protect [patients] from the effects of caffeine, I think we have to warn [them] to abstain from caffeine if they can," Sung advises.

Sung's work, which focuses on the cardiovascular consequences of caffeine and exercise on hypertensive men, is part of a larger, federally funded study assessing the effects of caffeine and stress. Sung now plans to investigate whether antihypertension medications cancel out caffeine's influence on blood pressure.

## Pogo stick is hopping good for the knees

Jane Doe, up-and-coming financial whiz, wanted sculpted body parts and the cardiovascular stamina to withstand 12-hour days of vigorous corporate raiding. Her aerobics instructor exhorted her to "feel the burn," but she also felt the snap, crackle, and pop of overstressed cartilage during one workout.

Research by Joseph M. Ponte, a graduate student in kinesiology at Kansas State University in Manhattan, indicates that pogo-stick jumping may offer Jane a low-impact alternative path to fitness as well as an effective physical therapy during recovery from her recent arthroscopic surgery.

Ponte, who defines his field as the science of human movement, videotaped people jumping with either a rope or a pogo stick on top of a force-measuring device. He then digitized the images and used a computer to identify the forces and torques acting on the body at given points. Preliminary results show that hopping on a pogo stick causes the rapid leg-muscle contraction needed to build tone but is much easier on the knees than jumping rope or jogging.

Ponte says two previous studies of the pogo stick's effectiveness as a physical-therapy device found it roughly equivalent to machines costing tens of thousands of dollars. To date, a number of orthopedic clinics and athletic teams have acquired stationary pogo-stick machines. Ponte believes he is the first to measure the physical impact of pogo-stick jumping.