Folic acid fights heart risk factor

High concentrations of the amino acid homocysteine in the blood may join the ranks of high cholesterol, obesity, and smoking as risk factors for heart attacks, say researchers from the University of Utah School of Medicine in Salt Lake City.

But the news isn't all bad. The scientists also discovered that the B vitamin folic acid—commonly found in green leafy vegetables, fruits, and legumes—appears to lower homocysteine in the blood and may protect the heart.

"We had found before that high homocysteine is associated with early coronary artery disease and plays a role in 12 percent of all early familial cases," says study investigator Paul N. Hopkins. "In this study, we found that the strongest indicator of homocysteine levels was folic acid."

Homocysteine is derived from methionine, another amino acid. Folic acid exerts its protective effect by helping an enzyme convert homocysteine back into methionine. Previous animal research found that high homocysteine concentrations damage the interior layer of blood vessels. In trying to repair the damage, the vessels clog.

The Utah team studied 120 men and 42 women who had suffered a heart attack, undergone angioplasty, or had coronary bypass surgery—before the age of 55, if they were men, and before age 65, if they were women. All participants also had siblings who suffered from early coronary artery disease. Eighty-five men and 70 women who didn't suffer from coronary artery disease served as a comparison group.

Among participants with the highest homocysteine, men were 14 times more likely to have heart disease, and women 13 times more likely, than people with the lowest concentrations. The researchers report their findings in the September Arteriosclerosis, Thrombosis and Vascular Biology.

When the researchers evaluated folic acid circulating in the blood, they found that the higher the folic acid concentration, the lower the homocysteine concentration. "This finding suggests that if you would raise the folic acid levels among coronary artery disease patients you could almost eliminate homocysteine levels as a risk factor," says Hopkins.

Hopkins notes that because processing and cooking destroy folic acid, it is the most commonly deficient vitamin in U.S. diets. However, the exact amount required has been a bone of contention. Before 1989, the Food and Nutrition Board of the National Academy of Sciences recommended that each adult get 400 micrograms (µg) of folic acid per day. But in 1989, the board cut that amount in half (SN: 10/28/89, p.277). Other researchers have found that homocysteine increases when people drop below 400 µg per day, says Hopkins.

University of Washington researchers combined the results of 38 studies of homocysteine and reported in the Oct. 4 Journal of the American Medical Association that 10 percent of the nation's heart disease results from high homocysteine. The group recommends that clinical trials be conducted to test folic acid's ability to stop heart disease.

In response to the recent findings, the chairman of the American Heart Association's nutrition committee, Ronald Krauss, says there is no direct evidence that folic acid deficiency leads to heart disease.

However, the Council for Responsible Nutrition, a lobbying association for the nutritional supplement industry, intends to petition the Food and Drug Administration to label folic acid as a heart disease preventive; it is already known to prevent certain birth defects. The group also plans to urge NAS to return the recommended allowance to 400 µg.

Hopkins maintains that appropriate amounts can be achieved through a healthful diet but that taking vitamins at the recommended levels is an appropriate alternative. He hopes that a clinical trial can determine appropriate folic acid concentrations to prevent heart disease.

New marker heralds preterm labor

It's the closest relationship anyone will ever have—the outpocketing of the earliest fetal tissues and the corresponding inwelling on the maternal side of the placenta—and it's held together by a natural glue called fetal fibronectin. This adhesive protein sticks around throughout pregnancy and changes into a lubricant just before labor begins.

Now, it appears that fetal fibronectin may serve another purpose—as a biochemical marker that signals the premature onset of labor. Researchers have found that concentrations of the biostickum vary in cervical and vaginal fluids during pregnancy. By testing thousands of women over the last 6 years, Charles Lockwood, a maternal-fetal specialist at New York University Medical Center, and other researchers have correlated fetal fibronectin's presence or absence with key stages of normal pregnancy and, to a lesser extent, with pregnancy that ends too soon.

Last month, the Food and Drug Administration approved the marketing of an in-hospital test for the marker in women with symptoms of early labor. The first of its kind, this approval comes after earlier markers raised hopes and then failed.

The ability to predict early labor would prove a godsend for women and their obstetricians. One in seven babies in the United States is born prematurely. More newborns become ill or die from preterm birth than from any other cause. Insurers pay more than $5 billion in intensive care for extremely low birthweight babies.

"Because of such a long search for something predictive," says Jay D. Iams, a maternal-fetal specialist at Ohio State University in Columbus, "physicians I see are overly skeptical. But that's not bad: It will help us use the test properly." A physician obviously wouldn't want to use the test on preterm women clearly in labor, Iams says, but developers think the test will shine in the murky world of semilabor, where "there's a lot of overtreatment."

Women between the 24th and 34th weeks of pregnancy commonly develop the contractions or mild cervical dilation that may mark preterm labor, says Lockwood. "Because risks of prematurity are so high, we tend to admit them routinely and give medications, even though they may not go into labor."

But, he adds, if the physician looks for fetal fibronectin and the test reads negative, "a woman is almost certain not to deliver within 2 weeks and has a 95 percent chance of lasting 3 weeks. That buys you time, and you aren't as aggressive."

Positive readings can present a problem. Large-scale FDA trials and other studies show that, when present, the protein accurately predicts a preterm delivery only one-third to one-half the time. Yet even that is "adequate," says Lockwood, in a situation where nothing else predicts well.

Group faults short stays for babies

Nearly a quarter of all full-term babies born in the United States are home from the hospital the day after they're born. Because infants are at increased risk of problems ranging from simple breast-feeding troubles to life-threatening intestinal blockages, the American Academy of Pediatrics last week issued a statement decrying "drive-thru deliveries."

"That a short hospital stay can be accomplished doesn't mean that it's appropriate for every mother and infant," the statement read in part.

In the October Pediatrics, the 49,000-member body also published a new checklist for hospitals to follow before babies go home. The list includes absence of jaundice, signs of coordinated feeding, and assurance that parents can recognize common infant problems—which should take at least 2 days to accomplish, the statement says. That same issue reports the failure of many early discharge babies to get proper testing for phenylketonuria (PKU), a preventable cause of retardation.