Childhood preventatives against adult heart attacks

Precautions taken in early childhood can help prevent later heart attacks

by Joan Arehart-Treichel

Opinions vary widely on the physiological factors that may dispose people to heart attacks, but nearly every specialist will agree that obesity and high levels of cholesterol in the blood are two of them.

The overwhelming bulk of research directed toward obesity, cholesterol and heart attacks, both in the United States and in Europe, has concerned subjects in their middle years. Recently, though, pediatrician June Lloyd and her colleagues at the Institute of Child Health and the Hospital for Sick Children in London have started looking at childhood obesity and elevated cholesterol levels as factors that may lead to heart attacks later in life. The reason, she explains, "is that preventive measures against coronary attacks are best applied in childhood."

The researchers have attempted to get a better idea of what role the number of fat cells and their size play in childhood obesity. Investigators have previously shown that overweight adults have too many, or too large, fat cells. Lloyd and her team have found that overweight children have too large fat cells, and some also have too many fat cells. The children with too many cells tend to have been overweight since their first year of life. It is possible that the acquisition of too many fat cells early in life may make it hard for a person to lose weight in later years.

Many research workers have also tried to get better insight into the causes of obesity. There is evidence of a genetic predisposition. Some animal strains, for example, tend to get fat easier than others. And recently Jules Hirsch of Rockefeller University found that several genetic strains of rats that tend toward obesity acquire too many fat cells, too large fat cells or both. Yet as Lloyd points out, "If parents are overweight, children are certainly liable to be overweight too. But this does not necessarily prove that obesity is inherited. Such families are also accustomed to overeating." Although the British pediatrician does not rule out the genetic possibilities, she is equally convinced that the tendency of some persons to overweight may result from their being overfed in childhood, especially during the first year of life.

"We must remember," she says, "that there are marked differences in the way people handle food. Data show that for a given age and weight, both in children and adults, the range of caloric intake is tremendous. So if you try to force a child who has relatively little need for food to eat more than his requirement, it's like trying to fill up a small automobile—say a Mini—as if it were a Rolls Royce. You'll overflow its tank."

Why do parents overfeed children? "Many parents feel they are failing as parents if they do not. If a child is of normal weight, I congratulate the parent. Yet many parents will reply, 'But Mary doesn't look nearly as healthy as her playmates.' We do tend to stuff children, particularly babies. There is absolutely no evidence that it is beneficial to overfeed a healthy child. An added problem is that few women breast-feed their babies these days [only 15 to 20 percent in Britain]. When mothers bottle-feed, they are jolly well inclined to see that their babies get a definite amount of milk, even if it is more than the baby wants or needs."

Lloyd advocates that mothers breast-feed, if for no other reason than that it will help them avoid the temptation to force-feed. She makes this recommendation in spite of her team's confirmation of the fact that breast-fed babies have higher blood levels of cholesterol than bottle-fed babies, because these levels drop toward the end of the first year of life when breast feeding has ceased. Elevated cholesterol levels during the first critical months of life could, she speculates, even touch off some regulatory mechanism that might help keep a person's cholesterol levels down later in life. Studies in developing countries show that breast feeding still predominates, and in those countries there are few heart attacks. So she speculates that there might be some correlation between breast feeding and heart attack prevention.

Whether an infant is breast-fed or not, though, all babies show marked fluctuations in blood cholesterol levels during the first year of life, the London researchers found. So they suggest that when pediatricians wish to diagnose infants who might be particularly susceptable to high cholesterol levels, they wait until the infants are one year old.

The London scientists have also discovered that a lipoprotein known to carry cholesterol in the bloodstream is somewhat abnormal in children with inherited high cholesterol.

"The composition of this lipoprotein might be helpful as a diagnostic marker where pediatricians are not sure whether a child has normal or abnormal levels of cholesterol," Lloyd suggests.

When pediatricians diagnose children for abnormally high cholesterol levels, it is usually because the family is known to be predisposed to high levels. When children are found in the high-risk level, the pediatrician may then try to lower the levels. Whether success in this attempt will offset heart attacks in adulthood remains to be proved. "We do know, though," Lloyd says, "that elevated cholesterol levels due to inheritance are associated with a high incidence of heart disease." With these factors in mind, she and her team are now trying to come up with better treatment for children with elevated cholesterol levels.

They have been able to lower these levels about 20 percent in most children by putting them on polyunsaturated fat diets. But such diets are difficult for children to follow since they exclude many foods they like. The team has also managed to slash cholesterol levels 30 percent in some children by combining dietary treatment with administration of a drug called Atromid. But they are not satisfied with Atromid because it is absorbed into the bloodstream and could, if used for long periods in growing children, have toxic effects. So they are now trying the drug Questran, which is not absorbed into the bloodstream, but rather binds to bile. Then the body is compelled to use cholesterol to make more bile, thereby lowering body levels of cholesterol.

Lloyd is the first to admit that heart attacks probably have many causes. However, she believes that more attention to feeding during infancy, the identification of children who tend toward obesity, and the lowering of blood cholesterol in children with high levels, are valuable preventive measures—especially where there is a family history of heart attacks early in adulthood. For example, she is currently trying to lower blood cholesterol levels in two children whose father had elevated cholesterol and died of a coronary at age 24, and whose five uncles and aunts also had elevated cholesterol and experienced heart attacks before ages 30 or 40. □