
Cardiac Risks of Childhood Malnutrition



Severe nutritional deficiencies before the age of five, including prenatal nourishment, may irreversibly harm heart anatomy and function. Adults who experience childhood malnutrition are at an increased risk for high blood pressure, which can lead to heart disease and stroke. The new findings, published in the American Heart Association's Hypertension journal, indicate that millions of people around the world are at risk for poor heart function, with serious implications for global health.

Irreversible Damage

As the heart develops before birth and in the early years of childhood, adequate nutrition is essential for the proper formation of cardiac structures. The effects of malnourishment can directly influence the way the heart functions in adulthood, independent of the additional risks incurred by lifestyle habits acquired during maturity.

Terrence Forrester, PhD, a chief scientist at UWI Solutions for Developing Countries in Kingston, Jamaica is a senior author of the study, which was funded by the New Zealand Health Research Council. He said, "If nutritional needs are not met during this time, when structures of the body are highly susceptible to potentially irreversible change, it could have long-term consequences on heart anatomy and blood flow later in life."

Dangers of High Blood Pressure

The study was conducted out of the University of the West Indies, Mona, in Jamaica. The researchers compared 116 adults, mostly in their 20s and 30s, who were malnourished as children to 45 adults who were well fed early in life. Once their height, weight and blood pressure was measured, all participants underwent echocardiograms or other tests that evaluate heart function.

Three cardiac risks in particular were found to be associated with malnutrition in early childhood. Compared to adults who were fed adequate diets as children, adults who experienced childhood malnutrition were more likely to have higher diastolic blood pressure readings, more resistance to blood flow in smaller vessels, and less efficient heart pumping. All three conditions can increase blood pressure, which puts people at risk for heart attacks and stroke.

More Than a Third World Problem

Like many developing countries, Jamaica has its share of the population that suffers from hunger and poverty. However, even wealthy nations such as the United States have households, which cannot be certain of acquiring or providing adequate nutrition to all family members. In 2012, 8.3 million children lived in such a household, according to the US Department of Agriculture.

If childhood malnutrition can be addressed at a global level, more cases of high blood pressure can be prevented and managed before they are allowed to manifest. Chronic health problems such as heart disease and associated metabolic conditions have costly consequences, both economically and in terms of human lives. Considering the pervasive nature of poverty worldwide, the impact of improved childhood nutrition on public health will be significant.

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