

ABSTRACT

Early Childhood Linear Growth Retardation And its Effects on Blood Pressure and Lung Function in Later Childhood

Pamela Suzanne Gaskin

It is hypothesized that blood pressure and other factors are programmed in early life. Prenatal and early postnatal undernutrition may influence this process. The studies to date, linking cardiovascular risks to early growth, have concentrated on prenatal rather than postnatal effects. However, early childhood undernutrition is common in the developing world. This study therefore seeks to examine the effects of stunting in early childhood on blood pressure and lung function in later childhood.

Subjects were selected from a house to house survey of children in Kingston, Jamaica. Blood pressure and anthropometric measures were taken in all children and lung function in a subgroup. All available reported and recorded birth weights were collected.

One hundred and twenty (120) 7-8 year old stunted children between 9-24 months were compared with matched controls. They remained shorter and thinner than the controls. They had smaller forced vital capacities, and higher systolic blood pressures, when size and pulse rate were controlled for.

An inverse relationship between the ratio of head circumference to height and systolic blood pressure, demonstrated at birth, in other studies, was seen in the non-stunted children at 7-8 years. This relationship was not apparent for the stunted children either at 9-24 months or at 7-8 years. Birth weight was not a significant predictor of systolic blood pressure, and the lung function differences between the groups appeared to be due solely to differences in size. These findings demonstrate that stunting in early childhood is associated with increased blood pressure in later childhood and may increase the risk of elevated systolic blood pressure in adulthood. In addition stunting is associated with a distortion in the relationship between systolic pressure, and head circumference to height ratio in childhood.

Key words: Stunting, Systolic Blood Pressure, Forced Vital Capacity, Pulse Rate