
REVIEW ARTICLES

Editorial Comment

Review articles childhood origins of disease

The editorial board commissioned a review by Dr Elford and colleagues on the subject of "The influence of early childhood health on morbidity of adults" which is published below. Dr Elford and colleagues, for the purposes of this review, have restricted their comments to data derived from ecological studies. Data derived from analytical studies, from which they reach broadly similar conclusions, have been reviewed by them and have been published elsewhere. It is apparent that the conclusions reached by these authors are at variance with those of others and the Editorial Board therefore invited Professor Barker and colleagues from the MRC Environmental Epidemiology Unit in Southampton to reply to the review by Elford *et al*, incorporating their own conclusions. Their review is also published in this issue.

Review article

Early life experience and cardiovascular disease—ecological studies

Jonathan Elford, A G Shaper, Peter Whincup

The possibility that experiences early in life influence the subsequent risk of adult cardiovascular disease excites the imagination. Such a relationship, if it exists, raises questions of vital importance for the aetiology of cardiovascular disease. What effect does early infant diet have on the subsequent risk of cardiovascular disease? Does the quality of the intrauterine environment reveal itself four or five decades later through the risk of cardiovascular disease in adult life? Clearly such a relationship, if it exists, has profound implications for public health policy. Instead of focusing on adults who are believed to be at risk, perhaps we should be concentrating on a new generation of infants and their mothers.

Several published papers have explicitly examined the relationship between circumstances early in life and adult cardiovascular disease. Others have been cited as providing supporting evidence. They have drawn upon different methodologies, have been conducted in a variety of settings, and have employed a wide range of early life indices and adult outcomes. This review considers these papers in order to establish whether they provide sufficient evidence to support a causal relationship between early life experience and adult cardiovascular disease.

Several features of an association allow causal relationships to be distinguished from those that are non-causal.¹ An association which is strong, specific, dose related, independent of recognised confounding factors, and consistently found in

different studies supports a causal relationship. The conjectured cause must precede the effect in time. For the hypothesis under scrutiny in this review, the suspected cause is situated early in the life cycle, long before the development of the cardiovascular outcome. Biological plausibility and experimental evidence provide additional support for causality, but very often such knowledge or evidence are not available. How well do the papers reviewed here satisfy the first five of these criteria—strength, specificity, dose-response, consistency, and independence from confounding factors?

The papers reviewed fall into three methodological groups: ecological, case-control, and longitudinal studies. In this, the first part of the review, we consider the 10 ecological studies.²⁻¹¹

The ecological studies

In ecological studies the group, rather than the individual, is the unit of comparison¹²; disease rates in various groups, usually living within specific geographical areas, are compared. The variation in rates from one area to another may be explained by other factors that also differ between the localities. For example geographical differences in lung cancer mortality may be correlated with the geographical distribution of petrochemical plants. In such studies data on individual behaviour that may influence risk are not always available. Thus the correlation

Department of Public Health and Primary Care, Royal Free Hospital School of Medicine, London NW3 2PF, United Kingdom
J Elford
A G Shaper
P H Whincup

Correspondence to:
Dr Elford

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