

the vessels in conjoined twins, acardiac monsters, and triplets; and presence of chromosomal discordance (21) in a pair of MZ twins, lends additional support to the initial surmise that the functional demands are largely responsible for the anatomical characteristics of fetal blood vessels of the placenta.

On the above basis, it is suggested that the inequalities of the prenatal environment be assessed by an examination of the fetal blood vessels of the placenta, as a prerequisite before drawing homologies in the twin concordance studies.

Prof. Indra Bhargava, P.O. Box 1059, Ahwaz, Iran

## THE NATIONAL HEART AND LUNG INSTITUTE TWIN STUDY OF CARDIOVASCULAR DISEASE RISK FACTORS: ORGANIZATION AND METHODOLOGY

M. FEINLEIB, J. C. CHRISTIAN, N. O. BORHANI, R. ROSENMAN, R. J. GARRISON, J. WAGNER, W. B. KANNEL, Z. HRUBEC, J. T. SCHWARTZ

*National Heart and Lung Institute, NIH, Bethesda, Maryland, USA*

*Department of Medical Genetics, School of Medicine, University of Indiana, Indianapolis, Indiana, USA*

*Department of Community Health, School of Medicine, University of California, Davis, California, USA*

*Harold Brunn Institute, Mount Zion Hospital and Medical Center, San Francisco, California, USA*

*The Karolinska Institute, Department of Environmental Hygiene, Stockholm, Sweden*

The National Heart and Lung Institute undertook a study of twins in 1969 to expand knowledge of the etiology of coronary heart disease and genetic relations that may cause

some individuals to have elevated levels of coronary risk factors while others do not. Between 1969 and 1974, 250 MZ and 264 DZ male twin pairs aged 42-56 were examined at study centers located in Massachusetts, Indiana, and California. The twin sets were identified from a roster of U.S. Armed Forces Veterans compiled by the NAS-NRC. Of the 1099 sets that were identified as living within 200 miles of any study center, both members of 514 sets volunteered to be examined.

The examination featured a medical and family history, a dietary interview, electrocardiogram, blood pressure measurements, weight and height measurement, a variety of blood chemistry tests, including complete lipoprotein analyses, and lung function tests. Zygosity was determined from analysis of 22 red cell antigens. A detailed interview dealing with the twins' relationships to each other was also obtained. Each of the centers also incorporated various ancillary substudies, including psychological inventories, vectorcardiograms, and red cell studies.

Each of the quantitative variables was tested for the presence of significant genetic variance using the method of Christian et al. which also tests for differential environmental effects. Variables found to have considerable nongenetic variability are examined by regression analyses to attempt to explain intrapair differences by differences in exposure to various environmental factors. The current report discusses the organization and methodology of the study while accompanying reports focus on the genetic variance in blood lipids, blood pressure, and coronary prone behavior patterns.

Manning Feinleib, M.D., Division of Heart and Vascular Diseases, NHLI, Bethesda, Maryland 20014, USA