



TRACE AND TOXIC ELEMENTS IN NUTRITION AND HEALTH

Editors

M. ABDULLA • S.B. VOHORA • M. ATHAR



JAMIA HAMDARD

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Editors

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Preface

The importance of elements in health and disease is becoming clear day by day. It has been recognized that most of the elements present in earth's crust are also present in our body. However, the role of many of these elements in physiological regulation has not so far been described. The mere presence of an element in the body tissue/fluid does not guarantee its involvement in physiological or biochemical processes. With the advent of sophisticated technology, in a few cases it has been possible to demonstrate the role of elements even at the genetic level, such as the role of zinc finger proteins in the regulation of gene expression. However, since the beginning of this century, many of these elements have been considered essential for the normal human growth and development. Both their deficiencies and excessive exposure cause ailments. Although malnutrition and starvation are restricted to certain poverty-stricken areas of the world, there are clear indications that subclinical deficiencies of essential trace elements are fairly common in both affluent and developing countries. Iron deficiency anemia and goiter due to iodine deficiency are examples illustrating the impact of trace element deficiencies. In developing countries, this area of health research has received only a limited attention so far.

The present state-of-the-art knowledge of trace elements is also substantiated by the ethnic and traditional literature which mentions their importance in health and medicament. Hakeem Abdul Hameed, who is a leading traditional physician, philosopher and philanthropist, realised the importance of elements in health and disease in early days of his life. He conceived the idea of interconversion of healthy and disease states of the body by the balance or imbalance of these elements. To emphasize and elaborate the role of elements in health and disease, he propounded a new discipline and coined the term Medical Elementology. Thereafter, he inspired the contemporary modern scientists to devote their time in finding the detailed role and mechanism of action of these elements in human body. For this purpose he organized the First International Conference on Trace Elements in Health and Disease at New Delhi, India, in 1983. It was a very successful conference. Many eminent scientists participated in the deliberations on the subject. During this meeting it was also realized that there is a need to continue this activity. Therefore the Second and Third International Conferences of this series were organized at Karachi, Pakistan in 1987 and at Ankara, Turkey in 1989. These conferences were attended by a much larger number of scientists showing a growing interest in this area of research.

The Fourth International Conference on Health and Disease: Effects of Essential and Toxic Trace Elements was again organized under the umbrella of Hamdard University, New Delhi, India. This conference, which was a very big event and was the best in the series, showed a true global participation of the scientists. About 300 delegates from 25 countries all over the world participated. The participants included eminent scientists from various interdisciplinary areas of medicine, physiology, biochemistry, pharmacology, toxicology, immunology, molecular biology, analytical chemistry, environment, nutrition etc. Among other participants were the health managers and health policy makers.

The five day deliberations included symposia, keynote address, plenary lectures, oral communications, poster presentations and formal and informal discussion on various facets of trace element research. These proceedings provide publication of the research papers presented in the conference. Eighty-two invited manuscripts have been published in this volume. The papers included have been

categorised into seven broad areas viz. (i) toxicology, (ii) health and disease, (iii) oxidants, free radicals and anti-oxidants, (iv) environment, (v) nutrition, (vi) therapeutics and (vii) analysis.

We are highly thankful to the members of various committees who took personal interest to make the conference a successful event. We also record our thanks for Hamdard National Foundation which provided us a generous financial support and also for various other funding agencies that include the Departments of Biotechnology, Science & Technology, Ocean Development, Government of India, Council of Scientific and Industrial Research, Indian Council for Medical Research, Indian National Science Academy, Centre for Science and Technology of the Non-aligned and other developing countries, United Nations Educational, Scientific and Cultural Organization, Global Network for Molecular and Cellular Biology, Trace Elements UNESCO Centre, Lyon, Food and Drug Administration, USA, International Society for Trace Element Research in Humans for sponsoring this conference without which it would have not been possible for us to organize it. Finally we are thankful to all those who have been associated and enthused organizers for making this global conference a memorable event.

M. ABDULLA

S.B. VOHORA

MOHAMMAD ATHAR

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