Intrauterine Growth Retardation

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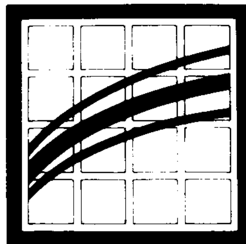

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Preface

Intrauterine growth retardation is a worldwide problem. In the more affluent societies, one-third of the low birthweight babies are small-for-dates, yet in communities with poor socioeconomic conditions the incidence of growth retardation due to intrauterine malnutrition can increase to 80% of low birthweight infants.

Perinatal mortality and morbidity are substantially increased in the intrauterine growth-retarded fetus. Short-term sequelae include perinatal asphyxia, meconium aspiration, hypoglycemia, and polycythemia. Long-term sequelae include continued growth retardation as well as learning and behavior problems, which depend on the type of growth inhibition and its duration and severity.

Despite numerous studies in this field, key aspects of intrauterine growth retardation remain undefined. There are still variations in definitions, classifications, and applicable birthweight standards. The factors responsible for fetal growth retardation are numerous but their hierarchic responsibility is not well understood. The question of how chronic reduction of uterine blood flow may affect the supply of oxygen and nutrients to the fetus is far from being answered. Most of the studies on placental circulation, hormonal regulation of fetal growth, and fetal metabolism have been carried out on animals of different species.

In the countries where the proportion of low birthweight infants is the highest, the relative influence of genetic and environmental factors is still poorly elucidated. There is a tendency to relate the high incidence of low birthweight infants to maternal undernutrition, but the benefit of food supplements during pregnancy is still a matter for discussion. Other environmental characteristics of poor socioeconomic conditions, such as maternal height, birth interval, parity, malaria, anemia, lack of perinatal care, and smoking habits, can result in lower birthweights.

The aim of the workshop on which this volume is based was to shed some light on all these factors affecting fetal growth retardation by bringing together international investigators of various disciplines interested in this area. Although much remains to be learned, considerable progress in the approach to intrauterine growth retardation has been made in recent years. In the late 1960s endocrine assessment of fetal placental growth and ultrasound measurement of fetal heart rate and biparietal diameter were revolutionary. In the late 1980s, the advent of Doppler techniques makes possible the verification of basic research done on animals and the evaluation of the dynamic aspects of the materno-fetal circulation.

The emphasis is placed more and more on anticipating perinatal complications, and the obstetrician is under pressure to predict the weight and the degree of maturity of the fetus and to decide when, where, and how the baby should be delivered. Although the mother remains the best incubator, intrauterine growth-retarded fe-

tuses should be delivered at any time when intrauterine conditions for fetal survival seem less favorable than those offered in extrauterine life. It is quite clear that the decision will depend on medical facilities and on socioeconomic factors. In cases of newborn babies with intrauterine growth retardation, one of the therapeutical problems challenging the neonatologist is the decision as to when, what, and how to feed the baby in order to obtain a catch-up of growth.

All these aspects, including the pathogenesis, the epidemiology, the endocrine and ultrasound assessment, the clinical management, and the prevention of intrauterine growth retardation, are covered in this volume, which will be of interest not only to obstetricians, pediatricians, neonatologists, and epidemiologists but also to everyone who is interested in improving the health of mothers and children throughout the world. The interest of this book lies just as much in the discussions as in the core of the chapters.

I believe that this workshop and this volume may have contributed to a better definition of the problems they address and hence, may stimulate further research and promote measures aimed at reducing the incidence of intrauterine growth retardation.

JACQUES SENTERRE

Foreword

In the eyes of a non-specialist, all low birthweight infants are premature. In actual fact, low birthweight infants should be categorized into real prematures and infants suffering from intrauterine growth retardation (IUGR) who may either have been born at term or prematurely. Despite the fact that in many countries it is somewhat difficult to evaluate the date of conception, this distinction is not purely academic because pathology and mortality of the infant differ in relation to organ and function maturation, frequency and epidemiology vary, and, depending on etiology, prevention would be different.

In developing countries, IUGR is the most frequent disease of the newborn. The rate can be as high as 17% if we take 2.5 kg as the limit, whereas in advanced industrialized countries the rate is less than 3%.

This also raises the question of the definition of low birthweight. Should we adopt the same weight in all countries, for all races, and for all socioeconomic groups? We probably should, because in developing countries, term newborns from high socioeconomic groups weigh the same as their counterparts from industrialized countries, and when people move from developing to industrialized countries, the birthweight rapidly increases.

This volume reviews the various causes of IUGR—vascular, endocrine, nutritional—as well as the diagnosis of such problems during pregnancy through the use of traditional methods available everywhere or the more sophisticated methods which so far are only available in industrialized countries. The consequences of IUGR immediately after birth and during the following weeks are exposed, and the management of the baby suffering from IUGR reviewed. Finally, the importance of prevention is restated and the possible methods of treatment debated, thus ensuring that this volume should become a very useful tool for obstetricians as well as neonatologists and pediatricians in varying environments.

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JACQUES SENTERRE