

Editorial Comment

Human Maternal-Fetal Nutrition

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IT IS ENCOURAGING to read the report of the ad hoc Committee on Maternal Nutrition of The American College of Obstetricians and Gynecologists in this issue of OBSTETRICS AND GYNECOLOGY. Pitkin, Kamnitzky, Newton and Pritchard are to be complimented on their effort to focus attention on some of the complex problems of human maternal-fetal nutrition and the toxemias of pregnancy. For decades human maternal-fetal nutrition has held little interest for the clinician; few areas of medicine have been more dominated by superstition, speculation, bias and unscientific assumption.¹ The classic nutritional philosophy of many obstetricians is probably related to the widespread belief that the human placenta functions as a parasite capable of extracting all essential nutrients necessary for normal fetal growth and development even in the presence of severe maternal dietary deprivation. Once the clinician can free his mind of this harmful myth, the problem of applying the principles of modern nutritional science to human antenatal care becomes simplified. It is important to feed both the pregnant patient and her embryo-fetus an adequate diet throughout gestation, and to aggressively combat nausea, vomiting, indigestion, medical illness, food fads, misinformation and any condition which may interfere with optimal nutrition.

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Submitted for publication Aug. 31, 1972.

It is indeed sobering to reflect with Pitkin *et al* that at the end of 1972: "... formal instruction in nutritional principles is notably absent from medical school curricula and residency programs." It is true that those physicians now responsible for human antenatal care in our nation remain confused and bewildered when the question arises: "How do I manage the nutritional problems of my pregnant patients?" The authors have set themselves the task of providing the clinician with practical answers to this and related questions for use in his daily work. These same questions prompted the monograph on metabolic toxemia of late pregnancy in 1966.²

The emphasis of this report is still rather neutral. We learn that there is no scientific evidence to support routine vitamin supplementation, with the exception of folic acid. Calcium supplementation likewise, is not recommended when the pregnant patient is able to consume a quart of milk a day, but the routine use of ferrous iron, 30 to 60 mg daily, during the second and third trimesters is advocated. An excellent scientific argument is presented that no sort of supplementation should lull us into a false sense of security regarding dietary deficiencies of other essential nutrients. Such supplements certainly can never compensate for poor food habits. This same philosophy is wisely extended to the common practice, in prenatal care, of using low-salt, low-calorie diets, saluretic diuretics and blind weight control. We are agreed that this latter approach to

human maternal-fetal nutrition problems has no scientific basis. There is growing evidence that physician-prescribed starvation diets, low-salt diets and diuretics constitute a grave maternal-fetal health problem in our nation today among women of all socioeconomic classes.

There is still a lingering fear of *excess weight gain*, as reflected in the recommendation that "an average total weight gain of 10 to 12 kg (22 to 27 pounds) appears to be optimal." Eastman has discredited the value of weight control in his analysis of 55,000 pregnancies in the National Institute of Health Collaborative Study of Cerebral Palsy.³ Normal pregnancy can take place over a wide range of weight gain provided the nutrition of the pregnant patient is adequate.⁴ The foods that pregnant patients eat are far more important in determining the outcome of pregnancy from the nutritional point of view. Burke recognized this fact over 30 years ago and presented scientific evidence linking both maternal and newborn health with the mother's diet during gestation.⁵

To rid his mind of the learned fear of dietary salt, every obstetrician should review the classic report on this subject by Margaret Robinson.⁶ It is now reasonable and scientific to view dietary salt as an essential nutrient in human pregnancy; it functions to maintain the expanded maternal blood volume and also has other physiologic functions. In an effort to bring applied, scientific nutrition into human antenatal care, the practical solution is to tell pregnant patients to: "Salt your food to taste."⁷ It is now obvious that both protein and sodium chloride are commonly found in the same foods and that both are essential in maintaining maternal and fetal blood volumes; a deficiency in either one can produce pathology in both mother and fetus.^{8,9}

It is apparent that the scientific principles of nutrition will not be applied widely in antenatal care until the role of protein-

calorie malnutrition is officially recognized in the etiology of metabolic toxemia of late pregnancy. Pitkin *et al* feel more comfortable with the traditional position: "The etiology (of acute preeclampsia/eclampsia, toxemia of pregnancy) is unknown." However, the role of malnutrition in this disease was clearly recognized by Strauss over 40 years ago.¹⁰ In a personal communication, Strauss described the clinical observations that led him to this thesis: toxemic women he encountered gave him histories of severe and prolonged nausea and vomiting and of poor nutrition. They were anemic and hypoproteinemic and many of them had obvious stigmata of vitamin deficiencies. Among 20 toxemic women carefully selected through scientific medical differential diagnoses, Strauss found that 18 had never eaten lean meat in their entire lives. He also found that when he fed them a high-protein, high-vitamin diet with adequate calories, their clinical status improved before delivery. Strauss clearly emphasized the role of hypoproteinemia in the hypovolemia and hemoconcentration of severe metabolic toxemia.

It is now established that saluretic diuretics are contraindicated in human pregnancy, with a rare exception. In 1962, the hazards that these drugs cause in the severely toxemic, malnourished patient with hypoalbuminemia, hypovolemia and hemoconcentration were clinically defined.¹¹ In 1972, Chesley agreed with this position.¹² When the protective effects of benign, physiologic edema for both mother and fetus are explained to the pregnant patient, she can easily tolerate a bit of discomfort knowing that her baby's growth and development are insured.⁴ When the clinician learns to recognize the edema of protein-calorie-salt deficiency, he will be able to offer his patients the correct and scientific advice—*improve your diet*. Drugs, like nutritional supplements, cannot compensate for poor food habits.

What *foods* should the pregnant woman

eat? The scientist's calories, grams, milligrams and micrograms must be translated into terms that are easily understood by our pregnant patients. A diet adequate for the pregnant woman and fetus appeared recently in the pages of this journal.¹³

There have been severe poverty and malnutrition in our nation for many years.¹⁴ This historic fact is omitted from the report of Pitkin *et al.* Ferguson documented the severe malnutrition of pregnant women in poverty in rural Mississippi over 20 years ago and linked their poor maternal-fetal and newborn health with malnutrition.^{15,16} Eastman indicates that the maternal death rate from eclampsia in Mississippi is currently five times the national average¹⁷ for the United States and recognizes that malnutrition is playing a basic etiologic role in this disease. Will the American College of Obstetricians and Gynecologists officially recognize this fact and set up scientific nutrition standards for education and practices in antenatal care? Will the principles of applied nutritional science be incorporated into our medical school curricula and Obstetric-Gynecologic residency programs? Will we insure that each pregnant woman who wants a healthy child, regardless of race, religion or economic class, is adequately fed throughout pregnancy and is taught the basic principles of nutrition? Only when these goals are finally achieved can we fully agree with Pitkin, Kaminetzky, Newton and Pritchard who, in 1972, state that nutrition in pregnancy is "... an idea whose time has come."

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