

INTRAVENOUS NUTRITION in the HIGH RISK INFANT

Edited by

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INTRAVENOUS NUTRITION IN THE HIGH RISK INFANT

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A WILEY BIOMEDICAL-HEALTH PUBLICATION

JOHN WILEY & SONS,
New York • London • Sydney • Toronto

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Library of Congress Cataloging in Publication Data

Main entry under title:

Intravenous nutrition in the high risk infant.

(Clinical pediatrics, maternal, and child health)

"A Wiley biomedical-health publication."

Includes bibliographical references and index.

1. Infants—Diseases—Congresses. 2. Parenteral therapy—Congresses. 3. Pediatric pharmacology—Congresses.
- I. Winters, Robert Wayne, 1926- ed.
- II. Hasselmeyer, Eileen G., ed. III. United States. National Institute of Child Health and Human Development. Perinatal Biology and Infant Mortality Branch.
- [DNLM: 1. Infant, Newborn, Diseases—Congresses. 2. Parenteral feeding—In infancy and childhood—Congresses. WS420 I63 1971-72]

RJ53.F5156 615'.5 74-26712

ISBN 0-471-95500-0

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

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Foreword

This book resulted from two interdisciplinary conferences concerned with total parenteral nutrition and sponsored by the Perinatal Biology and Infant Mortality Branch of the National Institute of Child Health and Human Development. These conferences are part of a series of meetings that pertain to research issues concerned with various facets of maternal and infant health.

Its subject, "Intravenous Nutrition in the High Risk Infant," is an extremely timely topic. Despite its relatively short history, total parenteral nutrition appears to have achieved an important place in contemporary therapeutics, particularly in infants. Yet a great deal remains to be learned about the potential benefits of this technique as well as its hazards. Answers to the many questions posed by its use will come only from an interdisciplinary approach and, accordingly, such a group was assembled for these conferences.

It is my hope that the timeliness of these conferences as well as the expertise of the participants, will expedite the exchange of new knowledge and stimulate new research in this important field.

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August 1974*

Preface

Total parenteral nutrition, or so-called hyperalimentation, represents an important recent development in the field of pediatrics in general and in neonatal medicine in particular. There is little doubt that this technique has already saved the lives of many infants; but there is also little doubt that its use has raised a series of new and important questions.

One group of such questions concerns the metabolic consequences of bypassing the liver and gastrointestinal tract. Other questions involve the types of hazards that attend the long-term presence of a catheter in a central vein, the means by which such hazards can be minimized, the definition of indications, nonindications, and contraindications for the use of the technique in different patient groups, and, finally, the possible beneficial or adverse long-term effects of early total intravenous nutrition on the mental and neurological status of low birth weight infants.

In order to frame these questions in a more definite form, two conferences were held, the first at Belmont, the Smithsonian Institute Conference Center, Elkridge, Maryland, on October 26 to 29, 1971 and a second in Washington, D.C., on May 24, 1972.

The first conference, the proceedings of which comprise Parts I through V of this volume, was attended by 25 biomedical scientists drawn from diverse fields. These experts presented data and provided much needed interdisciplinary discussion of the general questions concerning intravenous nutrition alluded to above. It is the editors' hope that the papers and discussions of this conference will stimulate the biomedical community to further research in this complex area.

A second purpose of this conference was to develop some practical guidelines, based on current knowledge, for implementation of this technique in infants. A preliminary draft of such guidelines was prepared by Robert W. Winters, then circulated to approximately 40 neonatologists for further refinements and

suggestions. A revised draft, presented to the conference, was discussed extensively and further revisions were made. The final draft is included in these proceedings. We are grateful to all who helped in the various stages of the preparation of these guidelines, and hope they will be useful to the pediatric community in representing a distillate of expert opinion as to the current status of practice of intravenous alimentation of infants.

One of the most important contributions of the first conference was the realization that one of the primary challenges posed by the technique of intravenous nutrition concerns the specific pattern and amount of amino acids to be delivered to an infant by the parenteral route. Because of the press of time; this important subject was not fully discussed at that conference. Accordingly, a second conference, entitled "Amino Acid Requirements for Total Intravenous Nutrition in Infants," was held on May 24, 1972 in Washington, D.C. Scientists with special knowledge in the area were invited to submit recommendations; which were circulated prior to the meeting. The deliberations of this group of experts along with comments from other observers concerning these recommendations are presented in Part VI. From these discussions a consensus of expert opinion appears to have been achieved concerning the composition of the "ideal" amino acid solution for parenteral nutrition in infants. It is our hope and belief that this second conference will be of interest to the scientific community involved with this problem and to the pharmaceutical industry with whom they must necessarily work closely to bring about the most effective nitrogen sources for total parenteral feeding of the pediatric patient.

We wish to acknowledge the services of Mrs. Anne M. Schmid for technical editing, Ms. Agnete Thomsen for artwork, and Mr. Herbert Mason for photography. Special acknowledgement is made to Mrs. Maureen L. Mayser who served as editorial assistant in the preparation of the entire manuscript.

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Intravenous Nutrition in the High Risk Infant

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