

Preface

Historical development of pediatric pharmacology started at the very beginning of pharmacology and pediatrics in the mid-nineteenth century. Actually, in many places both medical disciplines stem from the same origin, the urban polyclinics or ambulances.

Already in the first therapeutic textbooks in pediatrics, often written by pharmacologists, it was stated that children are not small adults as demonstrated by the fact that the volume of distribution (V_d) for many drugs is larger in infants and drug reactions can be quite different in young children as seen with opiates, aspirin, and caffeine.

Unfortunately with the entry into a more scientific area at the beginning of the twentieth century pharmacology and pediatrics took up different paths. On the one hand, the pharmacologists became more and more fascinated by the options of learning more about the autonomic nervous system from studies with experimental animals, and on the other hand, the pediatricians discovered the enormous impact of microbiology for the prevention and treatment of infectious diseases and impact of biochemistry for the development of age appropriate nutrition, especially for infants. At the same time with losing interest in pediatric pharmacology pediatric teachers have started to propagate pharmacotherapeutic nihilism, especially for newborns and infants with the arguments of (a) lack of appropriate pediatric formulations and age appropriate posology, (b) unpredictable effects of maturation and development on pharmacokinetics and pharmacodynamics and vice versa, (c) effects of drugs on maturation and development, and (d) last but not least of missing verbal communication with very young children, which considerably reduced the options of assessing drug efficacy and tolerance in this young pediatric population.

With this history in mind, it is not at all surprising that in the 1970s when several modern pediatrics subspecialties like oncology, neonatal intensive care, cardiology, and transplantation with the need of extensive drug treatment appeared on the scene, the orphan drug status became more and more obvious. Many pediatricians and pediatric scientists in academic institutions and in pharmaceutical industry have lost or even never gained interest and professional competence in pediatric

pharmacotherapeutics. This has led to a widespread off label use of highly potent but also precarious modern medicines especially in the very young and very sick pediatric population.

The objective of this volume is to overcome in part some of these gaps by giving an overview of the present state of the art of pediatric clinical pharmacology including developmental physiology, pediatric-specific pathology, special tools and methods for development of drugs for children (assessment of efficacy, toxicity, long-term safety, etc.) as well as regulatory and ethical knowledge and skills. In the future, structural and educational changes have to lead back to a closer cooperation and interaction of pediatrics with (clinical) pharmacology and pharmacy. Medical faculties and learned societies might consider establishing a tenure track system for well-trained pediatric pharmacologists. Moreover, the young general pediatrician needs to be better trained in the basics of pediatric drug treatment. Hopefully, pediatric pharmacology will not end with better knowledge and medical service for children in high-industrial countries only but will also help to improve drug treatment especially for those children in the developing countries. Intense international networking initiatives could be very helpful to come closer to achieve the goal of better medicines for all children worldwide.

Truly the time should be over, in which drug treatment was everybody's business with the consequence that this everybody's business is frequently nobody's business (Shirkey 1975).

Marburg, Germany
Stockholm, Sweden
Stuttgart/Tübingen, Germany

Hannsjörg W. Seyberth
Anders Rane
Matthias Schwab

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Seyberth, H.W.; Rane, A.; Schwab, M. (Eds.)

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