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Contributions to Nephrology

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(Founded 1975 by Geoffrey M. Berlyne)

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Exactly 40 years after the first contribution of Lee W. Henderson on the potential use of convection as a blood-cleansing modality and exactly 30 years after H. Leber published his first paper on a new dialysis modality called ‘hemodiafiltration’, this book is a tribute to the genius and creativity in the field of artificial organs. But the book is not just a homage to the brilliant idea or to the important investigators, it is a real updated review of the evolution, the advances and the recent results achieved by hemodiafiltration in the clinical arena as renal replacement modality. For this reason, this comprehensive review, made possible by a series of outstanding scientists and physicians, represents today an important source of information and a valuable tool for implementing hemodiafiltration in the daily practice. For a long time, results were limited, and evidence was scanty and insufficient to expand the application of hemodiafiltration; recently however, large studies and important clinical investigations have produced enough evidence for a clinical application of hemodiafiltration on a broader scale and even on a routine basis in some centers.

The present book is a collection of papers that include historical notes and a journey through the evolution of different forms of hemodiafiltration, made possible by technological developments in the field of membranes, machines and fluids.

The subsequent group of papers describe the theoretical rationale for hemodiafiltration with a detailed analysis of the involved mass separation processes and the hydraulic properties of the dialyzers. In this section, fluid mechanics and crossfiltration in hollow-fiber hemodialyzers are described in detail.
A special section has been devoted to the description of different hemodiafiltration techniques; in each chapter, a specific technique is analyzed, and the particular transport mechanism and related technology are reported.

Finally, the clinical effects of hemodiafiltration are described in a series of chapters that conclude the book.

At the end of this important enterprise, we are proud of our effort to unify the knowledge about hemodiafiltration. The book includes different technologies and therefore offers the readers a complete overview of the technical and clinical possibilities provided by the technique in its widest concept. It is not a case that the three editors come from three different European countries where hemodiafiltration has found large application and interesting clinical results. Joining our efforts has been mutually rewarding, but also a precise warranty that a multinational view has been conveyed in the main message of the book.

We are indebted to Karger for the prompt and efficient publication of the book that allows physicians and investigators to have a comprehensive overview of hemodiafiltration from its molecular basis to the most practical application. Thus, we hope that this book will represent an important aid for beginners and for experts, for scientists and for physicians, for students and for senior faculty members, creating the bridges that today’s translational research is intended to build.

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