Hemodialysis Vascular Access and Peritoneal Dialysis Access
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Volume Editors

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Recent developments in hemodialysis techniques have spurred new interest in the field of the vascular access for renal replacement therapies. In particular, the progressive aging of the dialytic population, the high prevalence of diabetes and the demand for increased dialysis efficiency have all pushed the research towards new solutions to access the patient circulation. The program of creating and maintaining a reliable vascular access in hemodialysis patients is today seen as a multidisciplinary task that may include the collaboration of nephrologists, surgeons and interventional radiologists. New techniques have been made available to measure access flow and to perform continuous noninvasive measurements of access recirculation. New biomaterials are today available with improved biocompatibility and surface characteristics and all these new technological issues require a complete and detailed discussion and evaluation.

Finally, the management of complications and the continuous maintenance and care of the access represent one of the most important challenges in the field of hemodialysis.

On the other side of the problem, peritoneal dialysis is emerging as an important renal replacement therapy for a wide spectrum of patients. The field of peritoneal dialysis is also evolving and new devices providing access to the peritoneal cavity have recently been made available. In this setting, the care of the access together with the management of complications represent a further challenge for the clinician. Furthermore, the care of the exit site represents an important aspect of the maintenance of the access and it should be considered as part of the standard access care. Newer techniques of peritoneal dialysis are becoming popular such as continuous flow peritoneal dialysis. In this setting,
special catheters are required to provide the flows necessary to perform the programmed treatment schedule.

Based on all these considerations, we felt it was important to generate a book covering all the important issues in the field as well as describing the available technology and methods available today. The book indeed represents an important project and a significant educational effort. We think that a book on this subject will constitute an important contribution in the field of hemodialysis and peritoneal dialysis and is particularly suited for the series *Contributions to Nephrology*.

The book is intended to represent a practical tool for physicians and nurses involved in the management and care of end-stage renal disease patients as well as a reference textbook for medical students, residents and fellows.

*Claudio Ronco*

*Nathan W. Levin*
Preface

The recent accidental death of Belding Scribner on June 19, 2003 has highlighted the old adage that precedent claims are rarely correct. The original idea of a bypass to maintain the patency of indwelling arterial and venous catheters was developed by Nils Alwall in 1948 and published in 1949 [1]. In his first animal experiments in rabbits, the carotid artery and jugular vein were cannulated with siliconized glass tubes and patency was maintained with a curved siliconized glass capillary bypass. Following the success of the animal work, Alwall et al. [2] started treating patients with end-stage renal disease. However, because of local infection and clotting he abandoned the technique in 1949. Thus, the real merit of Scribner’s contribution (who recognized Alwall’s original claim in the first publication in 1960 at ASAIO [3]) was his determination not to abandon the technique. This intense determination to succeed was evident in his presentation at Evian in September 1960 which I had the honor to hear [4]. Alwall [5] also gave a presentation at Evian on the Swedish experience in long-term dialysis and as a consequence of their work, I started a long-term ESRD dialysis program at the Royal Free Hospital London in 1961. At this time, the Teflon shunt had a life expectancy of weeks and for this reason we developed a femoral vessel puncture technique with a modified Seldinger catheter [6]. Attempts at leaving the catheter in permanently were soon abandoned after fatal embolic and infectious complications [7] and we switched to the shunt developed by Quinton in 1961 where he had developed a flexible siliconized rubber tube to replace the original all Teflon shunt [8]. The silicone Teflon Quinton shunt had a life expectancy of months to years and without this development it is unlikely that there would be more than one million people today living on dialysis. However, in my opinion,
the definitive access site had to await the development from New York by Cimino and Brescia working at the VA hospital in the Bronx. In 1962 [9], they had attempted to perform regular dialysis with a simple venipuncture and pointed out the advantages of this technique over the indwelling Scribner shunt or our repeated femoral vessel puncture technique. It only required the contribution of Appel, the surgeon of the group, to construct the AV fistula for their argumentation of 1962 to become a reality 4 years later [10]. Today, I have no doubt that the only acceptable long-term approach to hemodialysis is via a venipuncture of a fistularized vein resulting from a surgically created arteriovenous fistula. My personal anectodal belief is based upon the 33 1/2-year survival of a radiocephalic fistula I created in January 1970 that has been punctured more than 5,300 times by the patient himself (3–4 × week) (fig. 1).

*Fig. 1. a* Radial cephalic fistula (side to side), created by S.S. in January 1970, used continuously since then by F.U. (male, born March 12, 1938), self-puncturing 3–4 × week. 
*b* Patient’s comments.
book. The 27 individual contributions cover completely the fields of vascular and peritoneal access. I feel certain that it will establish itself as a leader in the access field.

References


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