SPECIAL ARTICLES

Laudatio: Dr. Bernard Charra

Dr. Bernard Charra was the recipient of this year's Special Award for Lifetime Achievements in Hemodialysis. The award was presented during the General Session of the 21st Annual Dialysis Conference in New Orleans, Louisiana, February 19, 2001 (Fig. 1).

Dr. Charra was born April 19, 1942, in Décazeville, in the central part of France. He spent his early youth in Paris (Fig. 2) and in several other cities in France. From age 9 to age 17, he lived in Morocco, which at that time was a French protectorate inhabited by people of a variety of religions and races. There, he learned to speak Arabic and Spanish.

Every year Dr. Charra's family took summer vacations at his mother's home in the countryside in Coligny (Jura), near Switzerland. There, he met Marie-Jo Bussillet, his wife-to-be (Fig. 3), with whom he spent most of his vacation days.

Dr. Charra attended medical school in Montpellier between 1961 and 1968. Montpellier is the oldest medical school in France and one of the oldest in Europe, second only to that at the University of Bologna, Italy (founded in 1088). The Hospital of the Holy Ghost, founded in 1145 at Montpellier, established a high reputation. Later, as a part of the University of Montpellier (founded in 1220), it became one of the most important centers in Europe for the training of doctors. In the 13th century, Montpellier was one of the great studia of Europe, maintaining its high rank until the mid-14th century. The medical school was world-renowned during the medieval period. While working there, Gui de Chauliac developed the scientific method of surgery.

Dr. Charra says that some malicious students used to say that Montpellier was not only the oldest medical school, but

FIGURE 1 Dr. Bernard Charra in New Orleans.

FIGURE 2 Bernard as a schoolboy.

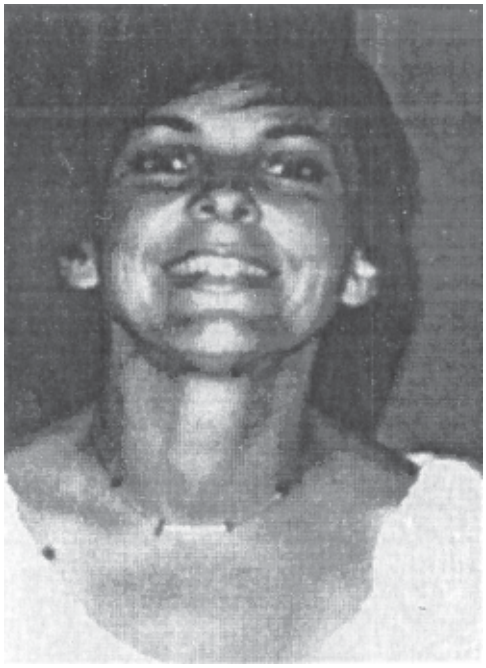

FIGURE 3 Marie-Jo, Dr. Charra's wife-to-be.

also that it had the oldest and most obsolete professors of modern world. This was not true, of course.

In 1961, Dr. Charra started a long period of daily correspondence with Marie-Jo, but their lives were terribly affected by post office strikes, which were more than frequent at that time. This epistolary love ultimately ended happily with marriage on July 21, 1966.

After graduation in 1968, Dr. Charra started an internship (equivalent of residency in the United States) in Montpellier. His main interests were acute care, infectious diseases, hypertension, and nephrology. During the internship, he became interested in hemodynamics, and he undertook a short training course in cardiac output (CO) measurements with Prof. Safar in Broussais Hospital in Paris. He applied the cardiogreen CO measurement method using blood re-injection to avoid aggravating anemia in chronic renal failure (CRF) patients. For two years, he analyzed the hemodynamics of arteriovenous (AV) fistulas using this method, and he wrote his doctoral thesis on "A new method of CO measurement in dialysis patients with arteriovenous fistula" in 1972 [1].

Dr. Charles Mion was Dr. Charra's first teacher in the Nephrology Department. The pragmatic approach of Dr. Mion to patient care, together with his great devotion to patients, impressed the young nephrologist. Dr. Mion, who had visited the Department of Nephrology at the University of Washington in Seattle in 1964, invited Dr. Belding H. Scribner to Montpellier. Dr. Scribner invited Dr. Charra to spend one year as a Senior Fellow in Seattle, initially to learn how to correctly implant the Tenckhoff catheter. At this time, hemodialysis (HD) facilities were insufficient in Montpellier, and the idea was to develop an intermittent peritoneal dialysis (PD) program.

The Department of Nephrology in Seattle, under the leadership of Belding H. Scribner, was a drawing point for nephrologists from around the world. Among those with whom Dr. Charra had the closest relationships were two Americans (Michael Kelly, Jack Broviac), one Argentine (Alberto Casaretto), one Brazilian (David Korn), two Australians (Charles George, Bill Adams), one Chinese (Fu Shen), one German (Chris Schmitt), one Filipino (Mike Baccai), and one Italian (Alberta Carbaccio).

In this multi-tongued chorus, Dr. Scribner was the Kapellmeister, and his orchestra was of the first class. In the faculty, Fellows had at hand the best sources of information in almost every field of nephrology: Henry Tenckhoff (peritoneal dialysis), Joseph Eschbach (anemia), Christopher R. Blagg (home hemodialysis), Donald Sherrard (osteodystrophy), James Burnell (potassium metabolism), Robert Davidson (hypertension), Robert Hickman (chronic renal failure in children, intravenous catheters), Thomas Marchioro (transplantation), Gary Striker (renal pathology), and Joseph Vizzo (experimental dialysis).

The two years spent in Seattle left an indelible impression on Dr. Charra, particularly in relation to his mentor, Dr. Scribner (Scrib to all his collaborators). Dr. Charra describes Dr. Scribner's leadership in this way: "One of the strongest impressions I had from Scrib came from his genuine simplicity and constant interest in the patient, or simply in the human being in front of him. It would be a real problem to summarize the wealth of my mentor, Scrib, in a few words. Scrib was—and is—a constantly curious and enthusiastic spirit; not to say a word of the outstanding courage and tenacity which made him do what all others could not: have everybody accept that maintenance dialysis therapy is a long-term realistic possibility."

Another person who was important in influencing Dr. Charra's approach to dialysis patients was Robin Eady, now a famous London professor of dermatology, who was the first non American CRF patient ever treated by maintenance dialysis. He started dialysis in Seattle in 1963 before returning to London, where he was one of the first patients of Stanley Shaldon. Back in England, Robin returned to medical school and continued dialysis at home. He had a brilliant academic career, including one year of specialization in Seattle in 1973. He finally received a kidney transplant after 27 years of hemodialysis, now more than 10 years ago. Dr. Charra and his wife, Marie-Jo, met Dr. Eady and his wife, Ann, in Seattle in 1973. In Dr. Charra's words, "[Dr. Eady] is for me a second mentor, showing what can be achieved by dialysis, but also [by being the] strong person [that] he is. The trips we did together—the vacations we had with our families—were for me a very useful second view of dialysis treatment, the patient side." Certainly, Dr. Charra's approach to dialysis patients indicates the strong influence of the patients' perspectives.

During his stay in Seattle, Dr. Charra spent three months with Christopher Blagg and Thomas Sawyer at the Northwest Kidney Center. During this period, they, with Armando Lindner, analyzed the outcome of the early patients treated in Seattle. Their work led to publication of an important paper on accelerated arteriosclerosis in hemodialysis patients [2].

Dr. Charra returned to Montpellier in 1973 and assumed the position of assistant to Prof. Charles Mion. At that time, Montpellier implemented a short dialysis schedule (3 – 4 hours)—quite a change from the schedule in Seattle where longer dialysis sessions were practiced.

After four years, Dr. Charra decided to switch from an academic career to a more clinical practice as a private physician. At that time, Guy Laurent and his associate, Edouard Calemard, private nephrologists in Tassin, near Lyon, were looking for a nephrologist to join them. Dr. Charra therefore moved to Tassin.

In Tassin, long, slow dialysis 3 times weekly for 8 – 10 hours had been maintained. The reason for this unconventional therapy was that Drs. Laurent and Calemard thought that dialysis session shortening was a response to socioeconomic pressures, without evidence that shortened dialysis was of benefit to individual patients. Dr. Charra was much happier with the results achieved with long, slow dialysis. Patients in Tassin were less anemic and better nourished. Their serum phosphates were well controlled with fewer binders, and their blood pressures were much better controlled than were those of Montpellier's patients under short HD. Generally speaking, patients using overnight dialysis were using few medications and experiencing very good rehabilitation. For 6 years (1979 – 1984), Dr. Charra personally gathered, recorded and, at the end of each year, summarized the already important clinical data stored in the standard paper charts. He also entered the data into a computer system until the 1990s when Tassin set up a computer system for real-time data acquisition.

Dr. Charra was the person mainly responsible for accumulating the Tassin data that resulted in the now-classic publications from that program [3–13]. The results concerning blood-pressure control and survival were very impressive. The group presented them to the European Dialysis and Transplant Association meeting in 1983 and reported them in a special issue of *Nephron* published for Scribner's Festschrift in 1983 [3].

Blood-pressure control and longevity were not the only benefits of long dialysis sessions. Analyses of the data supported the clinical impressions of better control of anemia, phosphorus, and nutrition. The group was, however, reluctant to publish the results of the method, which was considered "old fashioned and obsolete" at that time.

Dr. Charra visited Dr. Scribner in Seattle (Fig. 4), and continued to correspond with him by mail and e-mail. Dr. Scribner came to Tassin to see firsthand whether the results were really as good as described. After visiting Tassin several times and reviewing the clinical data, Dr. Scribner strongly encouraged the group to publish. He said, "Look, Bernard, you have no choice. The data do not belong to you, they belong to the medical community. You must just do it."

FIGURE 4 Dr. Charra visits Dr. Scribner and Ann Scribner in Seattle.

According to Dr. Charra, "Scrib has become my real mentor and a very close friend more than ten years after I had left Seattle only because of Tassin data."

Several papers followed, discussing the influence of long dialysis on HD-related amyloidosis [4,5] and on periarticular syndrome [6].

At the height of discussion on hemodialysis adequacy in relation to Kt/V_{urea}, Dr. Charra and his colleagues published several papers indicating that survival rates are the most important indicators of dialysis adequacy, and that Kt/V is much less important in determining dialysis adequacy than is generally accepted [7–12]. Survival rates depend in turn on cardiovascular mortality, which is contingent on blood-pressure control [13].

Blood pressure is remarkably better controlled by long, slow hemodialysis than by short hemodialysis sessions [14–18]. The major obstacle to achieving good control of blood pressure is proper estimation of dry body weight. Patients on short dialysis become hypotensive owing to hypovolemia before real dry body weight is achieved [18]. With slow dialysis, the patients achieve dry body weight without hypotension at the end of dialysis [19–21]. However, in patients starting dialysis, blood-pressure control is achieved several weeks after dry body weight is attained [22]. Thus, thanks to Dr. Charra and his colleagues, we now have a new view of dialysis adequacy and an explanation of why short dialysis sessions are associated with high cardiovascular mortality.

Edouard Calemard and Guy Laurent have retired in the last 2 years, and Dr. Charra has become the head of the Centre de Rein Artificiel de Tassin. Under his direction, the center continues its efforts to improve patient care. At the present time, 6 nephrologists and 2 general practitioners are participating in the care of 250 patients in the center, in three satellite self-care units, and in a home dialysis program (Fig. 5). Precision in estimating dry body weight is one of the most

important elements in patient care [23]. Long, slow hemodialysis remains the standard in 75% of patients; short dialysis (3 × 5 hours weekly) is used in about 25%. The ratio of personnel to patients (about 1 nurse or helper for each 6 patients) is lower than the 1:3 ratio that is usual in short HD units. The low ratio is possible because intradialytic adverse events are rare with long, slow hemodialysis.

Dr. Charra is one of the speakers most frequently invited to conferences related to nephrology in general and to dialysis in particular. In spite of his extremely busy professional schedule, Dr. Charra finds time for family life (Fig. 6). He and Marie-Jo have four children. The elder daughter, Claire, is a radiotherapist, and her husband is a surgeon at the University of Nancy; they have three children. The elder son is a professor of history, and his wife teaches medieval French at the University of Bordeaux; they have a baby daughter. The younger son is a general practitioner, and his wife is a resident in gynecology; at the time of writing, they were expecting a baby. The youngest daughter is 22, single, and just starting her career as a designer.

FIGURE 5 Dr. Charra, third from left, with his assistants at the Centre de Rein Artificiel in Tassin.

FIGURE 6 Dr. Charra's family with Marie-Jo's parents.

Dr. Charra's favorite motto in life is taken from Reinhold Neibuhr: "God, grant me the serenity to accept the things I cannot change, courage to change things I can, and the wisdom to know the difference." He discovered it on Dr. Scribner's houseboat wall atop the computer corner, and he keeps it on his office wall in Tassin.

When, in 1705, Queen Anne knighted Isaac Newton for his scientific achievements, that great man said, "If I have seen further, it is by standing on the shoulders of Giants." The Seattle experience, Dr. Scribner and his faculty, and Dr. Eady all had a decisive influence on Dr. Charra's understanding of adequate dialysis. Those experiences explain why he has not succumbed to the fashion of short, fast dialysis with barely sufficient Kt/V, but has championed long, slow dialysis with gentle ultrafiltration, which allows achievement of true dry body weight, excellent blood-pressure control, and superb patient survival.

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