
Why Our Patients Like Daily Hemodialysis

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The option of daily hemodialysis (HD) was discussed in November 1998 with a group of 35 HD patients on home or self-care/limited-care HD in a single, freestanding unit. After the meeting, 3 patients on home HD chose to switch to daily HD. The clinical success of the first patient and the immediate followers was one of the main reasons for further extension of this experience. At the time of this writing (February 2000), 10 patients were on a daily HD program (8 at home and 2 in a self-care/limited-care center) and one was in training for home daily HD. One further patient who tried 1 month of daily HD dropped out for logistic reasons. On daily HD, patients are dialyzed 2–3 hours/day, 6 days/week, with blood flow of 270–300 mL/min, on bicarbonate dialysate with individually determined levels of Na and K. The schedule is flexible and a switch to 3–4 dialyses/week is occasionally allowed for working needs or for vacation. In addition to the well-known clinical advantages (better well-being, blood pressure control, nutrition, etc.), some patients preferred daily HD because of easier organization of daily activities, including work schedule. Patients initially feared frequent needle punctures and excessive burden on partners, but those concerns proved to be less a problem than anticipated. All current patients are willing to continue daily HD; only a nursing shortage limits further extension of the program in the self-care/limited-care center.

(*Hemodial Int*, Vol. 4, 47–50, 2000)

Key words

Daily hemodialysis, home hemodialysis, patient satisfaction, quality of life

Introduction

Daily hemodialysis (HD) is used increasingly as a treatment option all over the world [1–8]. However, despite a striking increase reported in recent years, only a few hundred patients overall have used this treatment modality, considered superior by several authors [4,5,7,8]. There are limits to a further increase of daily HD: logistic problems related to travel make it mainly a home treatment, therefore suited at present only

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for a limited number of patients [1–8]. Even if some solutions may be foreseen, daily HD is relatively expensive, particularly in countries such as Italy where reuse is not allowed. Shifting patients from regular sessions (3 times/week, 4–5 hours) to daily HD (6 times/week, 2–3 hours) in limited-care centers implies almost doubling nursing time. Nephrologists are often perplexed by how this modality can be implemented. Patients often share their concerns with caregivers, including fear of frequent needle punctures and “not having days off dialysis.” The aim of this study was to analyze the opinions of our patients who tried and eventually continued daily HD, either at home, or in a self-care/limited-care center.

Materials and methods

Center

As of February 2000, 37 patients were on home dialysis or on self-care/limited-care dialysis in our center. In our area, the terms self-care and limited-care are used interchangeably. Most patients take an active part in their own care but require a varying amount of help from the nurses. Due to the flexible schedules employed, the nurse/patient ratio is not fixed. During the period from January 1999 to February 2000, the unit followed 41 patients. One patient transferred to a hospital-based unit for hemofiltration, 2 patients received renal grafts, and 1 patient recovered renal function. At the time of this study, 5 nurses were taking care of 37 dialysis patients: 16 at home, 21 in center; 2 on daily HD, 6 on 4 dialyses/week, 2 on 2 dialyses/week, and the others on 3 sessions/week.

This small center was the setting where home dialysis and self-care/limited-care dialysis started in our area, and was the first self-care dialysis center in Italy and possibly in Europe. The center is a satellite of a larger university unit, which follows about 150 patients on hemodialysis, about 50% of them in 2 out-of-hospital units, and 50 patients on peritoneal dialysis.

Patients

Demographic and clinical data of the patients on daily HD are depicted in Table I. Three patients had a previous renal graft. At the time of writing (February 20, 2000), 10 patients were on daily hemodialysis (8 at home and 2 in the self-care center), 1 patient was training for daily hemodialysis. One patient (Patient 9) transferred from daily HD to 4 dialysis sessions per week (5 hours each).

TABLE I Patients who have tried daily hemodialysis at the self-care unit or while on home hemodialysis (as of February 2000).

Patient	Sex	Age (years)	Time on RRT (years)	ESRD	Comorbidity	Start of daily dialysis	Schedule	
							Pre daily dialysis	Daily dialysis
1	M	41	21	CPN	Vascular disease	11/25/98	4.5 hr × 3	2 hr × 6
2	M	51	23	CPN	None	12/7/98	4.5 hr × 3	2 hr × 6
3	M	36	4	CGN	Severe hypertension	12/11/98	4.5 hr × 3	2 hr × 6
4 ^a	F	51	1	Type 1 DM	Diabetic neuropathy	01/04/99	—	2.5 hr × 6
5	M	33	2	MPGN	None	04/02/99	5 hr × 3	2 hr × 6
6	M	61	20	CGN	Severe cardiovascular disease (digital amputations)	04/28/99	3.5 hr × 4	2.5 hr × 6
7	M	42	1	MODY, NS	Obesity, diabetes	05/10/99	5 hr × 3 + 4 hr × 1	3 hr × 6
8	M	51	2	PKD	Melanoma	06/26/99	4 hr × 3	2 hr × 6
9	M	42	9	MODY	Severe cardiovascular disease	07/15/99	5 hr × 4	3 hr × 6
10 ^a	M	54	18	MPGN	Severe cardiovascular disease (coronary bypass)	08/16/99	4 hr × 3	2 hr × 6
11	M	55	1	IN	None	11/03/99	4 hr × 3	2 hr × 6
12	F	53	3 months	SLE	Multiple organ involvement	In training	4 hr × 3	2 hr × 6, training

RRT = renal replacement therapy; ESRD = end-stage renal disease; CPN = chronic pyelonephritis; CGN = chronic glomerulonephritis; DM = diabetes mellitus; MPGN = membranous-proliferative glomerulonephritis; MODY = maturity onset diabetes of the young; NS = nephrosclerosis; PKD = polycystic kidney disease; IN = interstitial nephropathy; SLE = systemic lupus erythematosus.

^a Patients on daily hemodialysis at self-care /limited-care unit; the others on home hemodialysis.

Daily hemodialysis schedule

Patients on daily HD used a bicarbonate buffer, individual levels of Na, K, and bicarbonate, and dialyzed 2 – 3.30 hours/day, 6 – 7 days/week, with a blood flow of 270 – 300 mL/minute, according to the experience of Bonomini and Buoncristiani and co-workers [1,2,4]. The schedule is flexible and patients may switch to 3 – 4 dialyses/week occasionally for working needs or for vacation. Weekly Kt/V was targeted to at least equal previous Kt/V on standard treatment.

Inquiry on patients' opinion and satisfaction

Data were collected in a semistructured interview by a nephrologist (usual caregiver). Both caregivers (physicians and nurses) and patients were asked to give reasons for choosing daily HD, and the reasons for continuing/not continuing treatment. Three additional questions were asked: Do you see any difference compared to previous treatment? Did you have fears or doubts before starting? Why do you like or dislike daily HD? Further comments were welcomed. Since one patient was in training, her opinions only on the reasons for choice were considered. Furthermore, caregivers' opinions, as presented in a discussion involving all physicians and nurses, are also reported.

Results

Choice to perform daily hemodialysis

In all cases, daily HD was chosen after discussion with caregivers, who underlined the presence of at least one fundamental clinical reason for trying this treatment. In three cases, a diabetic patient on waiting list for renal-pancreas graft (Patient 4), and two severely vasculopathic patients (Patients 6 and 9), daily HD was chosen based mainly on the

caregivers' opinion. In the remaining 9 patients, their own motivation was the main reason for the decision. In all cases, the decision to try this treatment represented careful consideration of both possible clinical advantages and personal preferences (Table II). In caregivers' opinions, because of superior hemodynamic stability and better dialysis tolerance, daily HD was preferred for patients who had been on long-term renal replacement therapy (RRT), those with severe vasculopathy and systemic disease (such as systemic lupus erythematosus or diabetes). In one case (Patient 8) daily HD was chosen during a period of postnephrectomy convalescence (for acute bleeding in polycystic kidney disease), and was continued because of improved subjective well-being.

Choice to continue daily hemodialysis

PATIENTS' OPINIONS

Only 1 patient discontinued daily HD, changing to 4 sessions/week (5 hours each) after an initial period of enthusiasm for the daily schedule. The patient's explanation for asking to return to the previous schedule cited working needs; however, in this case, the caregivers' opinions pinpointed a severe compliance problem, with difficulties in being "controlled" daily by the nursing team. In all other cases, daily HD was continued for both clinical reasons and work schedule. Interestingly, an improvement in well-being was noticed almost immediately by most patients (Table III).

CAREGIVERS' OPINIONS

In our center, daily short dialysis was offered as an option to all our patients and discussed with all of them. The clinical success obtained in the first patient who started daily HD [Patient 1, a 41-year-old male musician (pianist), on RRT

TABLE II Clinical incentive and personal motivations for daily hemodialysis: Opinions recorded pre daily dialysis.

Patient	Clinical incentives	Personal motivations	Fears
1	Long RRT follow-up	Poor tolerance of routine dialysis	Patient's concerns of increased burden to partner
2	Long RRT follow-up	Search for best treatment	Fear of losing residual diuresis
3	Severe hypertension	Logistic reasons	No fears
4 ^a	Cardiovascular instability	No specific motivation Confidence in caregivers' opinion	Fear of needle punctures
5	Severe hypertension	Logistic reasons (work)	Fear of needle punctures
6	Severe cardiovascular disease	No specific motivation Confidence in caregivers' opinion	Fears for the fistula
7	Obesity, chronic fluid overload	Logistic reasons (work)	No fears
8	Convalescence after nephrectomy (for bleeding in PKD patient)	Work reasons Search for best treatment	Patient's concerns of increased burden to partner
9	Cardiovascular disease	No specific motivation Confidence in caregivers' opinion	No specific fears Overall skepticism of benefits
10	Cardiovascular disease	Search for best treatment	Fears for the fistula and of the needle punctures
11	Cardiovascular disease	Search for best treatment	No fears
12	Systemic disease	Logistic reasons (work)	No fears

RRT = renal replacement therapy; PKD = polycystic kidney disease.

^a Patient 4 started RRT on daily hemodialysis.

TABLE III Patients' opinions.

Patient	Time of follow-up (months)	Positive opinions	Negative opinions
1	15	I'd have never thought to perform a concert after dialysis. I started feeling better after a few days...I'm less tired and thirsty	Increased domestic expenses
2	15	After a few weeks, appetite and residual diuresis increased. Sexual performance is better. I'm less tired and thirsty.	Too many dialysis supplies in my house
3	15	After a few days I started feeling better. I have more freedom. My quality of life improved. We are finally again a family (a baby was conceived on daily dialysis).	None
4	14	I cannot make comparisons because I started on daily dialysis. I think it's good for my major problems (hunger and thirst).	I'm at the center every day.
5	10	I see the difference when I play tennis. When I'm on daily dialysis I can play two hours without problems; when I have to shift to three times per week I feel tired after one hour. Blood pressure control is easier. With frequent needle punctures I've lost my fears of self-piercing.	Daily dialysis, in my opinion, is acceptable only with the option of doing standard dialysis for some periods.
6	10	Blood pressure control is easier; anxiety and thirst are diminished. The shorter treatment allows good daily organization.	None
7	9	It's ideal for my work (owner and cook in a restaurant). I'm less tired after treatment.	None
8	8	I feel better and have a better appetite. I'm not tired after treatment.	None
9 ^a	1	Possibly I felt better, but I have too many logistic problems. I need at least 3 days off dialysis.	Overall skepticism of benefits
10	6	I feel better and I have the impression of having more time for myself, despite the fact that I have to cross the city to go to the center.	The time spent for travel across the city every day
11	4	I'm not tired after treatment. I feel better. I eat and drink freely.	None
12	In training		

^a Patient 9 dropped out after 1 month

since 1978] and in the 2 patients who immediately followed his example was probably the main reason for further extending daily HD in our center. In fact, in small settings such as our center, the group often easily identifies opinion leaders, and often patients with longer experience of RRT perform a sort of "maternalism" to new patients. Therefore, since daily HD was chosen and enthusiastically supported

by some of our "veterans," it was relatively easy to obtain the collaboration of our nurses and other patients. The nursing team is crucial for treatment success, particularly when treatment is performed in-center. Obtaining active cooperation of the nursing team and underlining the innovative aspects of the treatment was very important for recruiting patients.

Discussion

Daily HD was confirmed as a very good treatment option in our setting, where home hemodialysis was recently reconsidered in patients affected by severe comorbid factors, who were previously not considered the best candidates for out-of-hospital or home treatments [9]. Together with a further confirmation of the good clinical results noticed shortly after commencement of daily HD, our inquiry focused on the reasons for choosing daily HD, from both the patients' and the caregivers' points of view. Since the difference in well-being is usually perceived within a few days after the switch from standard to daily HD, it is relatively easy, using opinions of patients already on this modality, to convince patients to try a short trial of daily HD. Theoretically, this should be offered to at least patients in whom it is compatible with their working or daily-living routine. A relatively surprising result is the preference given to daily HD by patients with an independent working activity, that is, those who may prefer to perform a daily short treatment in the context of a very busy life. The "secret for success" in these cases is presumably linked to the choice of a very flexible treatment schedule and to an immediate subjective perception of well-being.

Conclusions

Daily HD is not only a clinically interesting option but may also represent an answer to the needs both of patients with active lives and of patients who, despite the presence of relevant clinical problems, want to self-perform dialysis. A short trial of daily HD may offer patients the opportunity to appreciate eventual differences with regular schedules and to decide if perceived well-being may overcome logistic disadvantages. From a theoretical point of view, this trial should be offered to all patients, since better rehabilitation has to be a goal for all patients. Performing this "experiment" may be relatively easy at home; however, the option of daily

treatments in freestanding centers (or even in hospital centers) implies a deep re-evaluation of present structures, and this may not be easy in overcrowded settings such as ours. Actually, no clear answer may presently be given to the question, "What would we do if all our patients would choose daily hemodialysis?"

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