

The nephrologist as a primary care provider for the hemodialysis patient

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Abstract. The role of nephrologists as de facto primary care providers (PCP) for dialysis patients is of increasing interest. We sought to determine the proportion of patients who rely on nephrologists for primary care and to identify demographic variables associated with this primary care responsibility. We reviewed the charts of 158 patients receiving hemodialysis at a suburban, freestanding, teaching hospital affiliated outpatient unit from December 1999 through January 2001. In addition, each patient was interviewed and completed a survey. Non-nephrologists were considered to be a patient's PCP if there was chart, survey or interview evidence of such a relationship. Of the 158 patients, only 56 patients had a PCP. The nephrologist thus was the de facto PCP in 65% of hemodialysis patients, a responsibility that was 3.3-fold more likely for patients not enrolled in a health maintenance organization (HMO) or managed care organization (MCO). In the non-HMO/MCO group, patients with a PCP had been on dialysis for less time than those without a PCP [2.7 vs. 4.6 years ($P = 0.0006$)]. Only 32% of patients on dialysis <1 year had nephrologists as de facto PCP vs. 71% of those on dialysis more than 1 year ($P = 0.0002$). This association between time on dialysis and de facto use of nephrologists as PCP was not accounted for by the shorter time on dialysis of HMO/MCO enrollees. The extent to which the nephrologist fulfills the often unsought role as PCP needs further investigation.

Key words: Health maintenance organization, Hemodialysis, Managed care organization, Primary care

Introduction

There are nearly 350,000 dialysis patients in the United States requiring ongoing care for their often multiple medical problems [1]. Since the dialysis patient and nephrologist are mandated to have regular interactions, the nephrologist is frequently the only physician who sees the patient. Thus, the nephrologist often will provide general and preventive medical care in addition to dialysis related care.

Only limited data are available to determine the extent to which healthcare is provided to hemodialysis patients by non-nephrologists [2, 3]. Also, one study surveyed nephrologists to determine their perception of the type of care they provide for their patients and whether this includes maintenance health care [4]. We sought to determine the proportion of hemodialysis patients who rely on nephrologists for primary care and to identify

demographic variables including third party payors associated with this primary care responsibility.

Materials and methods

The dialysis center is a suburban, freestanding, teaching hospital affiliated outpatient unit. Six full-time university faculty nephrologists and eleven privately practicing nephrologists provide care to the hemodialysis patients. Each hemodialysis patient is primarily cared for by a single nephrologist.

From December 1999 through January 2001, a survey was distributed to 220 patients receiving routine in-center hemodialysis treatments at this center. 158 patients completed the survey and interview process.

The survey requested that the patients identify the nephrologist, primary care physician and other subspecialists from whom they had received care

Table 1. Demographics of patients with and without a PCP

	Patients with PCP	Patients without PCP	Probability value
All patients	56	102	
% Male	57%	48%	0.27
Age \pm SD (years)	64.1 \pm 15.7	60.6 \pm 15.7	0.17
Years on dialysis \pm SD	2.8 \pm 2.5	4.6 \pm 3.6	0.001
Insurance type			<0.001
HMO	25	1	
Non-HMO	31	101	

within the past 2 year period. We define primary care provider (PCP) as a non-nephrologist physician who delivers preventive and general medical care, management of ongoing medical problems, and treatment of minor acute illnesses. Additionally, each patient was interviewed and respective charts reviewed to obtain and verify additional demographic data.

Statistical analysis was performed using χ^2 or unpaired Student's *t*-test (two-tailed) when appropriate. Data are provided as mean values \pm standard deviation (SD). The study design was approved by the Institutional Review Board of Robert Wood Johnson Medical School.

Results

The patient demographic data are shown in Table 1 and include: age, gender, length of time on dialysis, and enrollment in a health maintenance/managed care organization. The population was typical of chronic dialysis patients in the United States in terms of ESRD etiology: diabetes mellitus (36%), hypertension (18%) and other causes

(Figure 1). The average patient age was 62 ± 15.7 years. 51% of patients were male. 35% (56 patients from a total of 158 patients) of patients identified a non-nephrologist as their PCP; 16.5% of all the patients (26 patients from a total of 158 patients) were enrolled in a HMO/MCO. Overall, 96% of HMO/MCO patients had a PCP. Conversely, only 23% of patients not enrolled in a HMO/MCO had a PCP (Figure 2).

More time on hemodialysis was associated with a significantly greater likelihood that patients would not have a PCP (4.6 ± 3.6 years vs. 2.8 ± 2.5 years, $P = 0.027$) (Figure 3). HMO/MCO enrollees tended to be on dialysis for a shorter time period than those not in a HMO/MCO (2.8 ± 2.9 years vs. 4.2 ± 3.4 years, $P = 0.58$), but this did not account for the association between time on dialysis and de facto use of nephrologists as primary care physicians. In the non-HMO/MCO group, patients with a PCP had been on dialysis for less time than those without a PCP (2.7 ± 2.0 years vs. 4.6 ± 3.6 years, $P = 0.0006$). Only 32% of patients on dialysis <1 year did not have a PCP vs. 71% of those on dialysis more than 1 year ($P = 0.0002$) (Table 1, Figure 4).

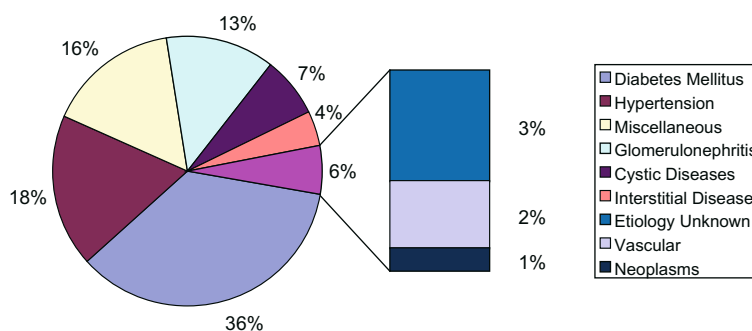


Figure 1. Etiology of ESRD of 158 patients in study population.

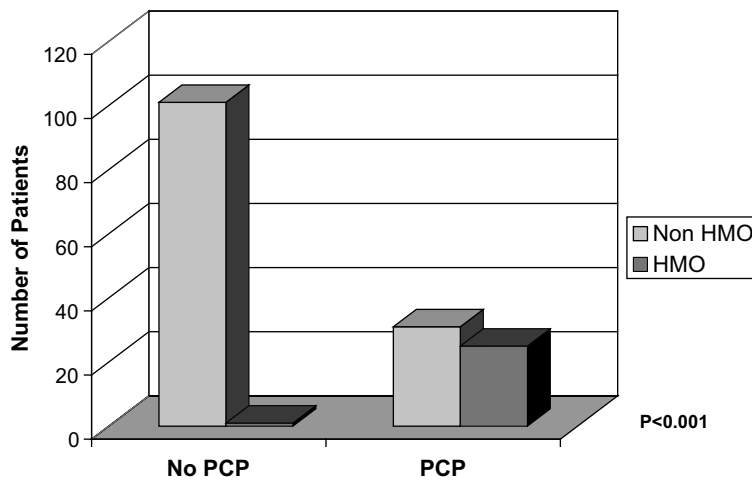


Figure 2. Number of patients with and without a PCP by enrollment in HMO/MCO.

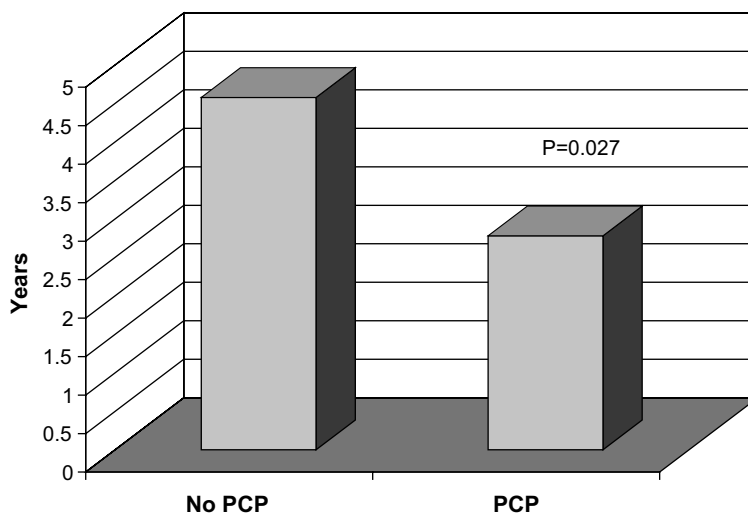


Figure 3. Average time on dialysis.

Discussion

These findings are consistent with earlier studies which concluded that nephrologists are the primary health care providers to the majority of their dialysis patients [2–4]. In 1992, Nespore and Holley surveyed 74 hemodialysis patients and found 80% perceived their nephrologist as their PCP [2]. Holley expanded this study to include 44 peritoneal dialysis patients. Comparatively, more peritoneal dialysis patients reported having a PCP (57%) than the hemodialysis patients (20%) [3]. Holley also noted that the hemodial-

ysis patients had been on dialysis for a greater length of time than the peritoneal dialysis patient – only 32% of peritoneal dialysis patients were on dialysis for more than 3 years compared with 65% of hemodialysis patients [3]. Thus, the greater likelihood that peritoneal patients would have a PCP may reflect their shorter duration of treatment.

Our study, the largest single center study of this issue to date, determined that the nephrologist is the de facto PCP in 65% of hemodialysis patients, a responsibility that was 3.3-fold more likely for patients not enrolled in a HMO/MCO.

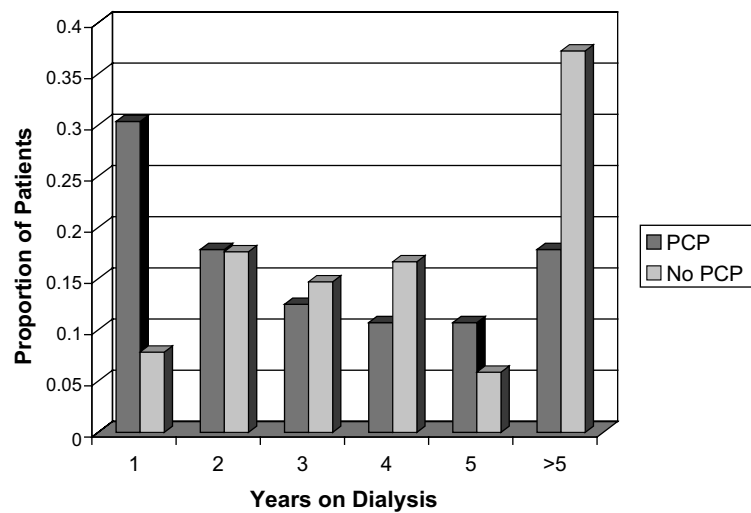


Figure 4. Relationship between presence of PCP and time on dialysis.

The greater percentage of patients with primary care providers noted in our study compared with Holley's report may be attributed to the growth and impact of HMO/MCOs on the dialysis industry. While individuals cannot enroll in an HMO/MCO after they develop ESRD, they may remain in an HMO/MCO if already enrolled when they develop ESRD [5]. Thus the fraction of dialysis patients who belong to an HMO/MCO is far less than the general population but is gradually increasing. Interestingly, however, the association between length of time on dialysis and de facto use of nephrologists as PCPs was not accounted for by the shorter time on dialysis of HMO/MCO enrollees. This suggests that over time, ESRD patients increasingly rely on their nephrologist for general medical care. Factors such as age, gender, or etiology of ESRD, which may influence ongoing care by a PCP, were not significant factors influencing the likelihood of this reliance.

ESRD patients receiving peritoneal dialysis or pre-ESRD patients were not investigated in this study. Depending on the individual dialysis unit contracts with HMO/MCOs, the findings from our study may not be generalizable to other dialysis programs. Also, this study does not attempt to evaluate or compare the preventive care practices of PCPs and nephrologists for the hemodialysis patient.

Although our study shows that an increasing percentage of chronic hemodialysis patients have a PCP, such patients still constitute the minority of

the chronic hemodialysis population. In the absence of a PCP, the nephrologist has the primary responsibility for providing general healthcare to the hemodialysis patients including health screening, coordination of care and treatment or referral for non-nephrologic problems. If the nephrologist is to provide ongoing primary care for chronic hemodialysis patients several issues require exploring such as expertise for appropriate preventive and general medical care, record keeping, time allocation for visits, staffing and monetary compensation for the services provided [5–7]. Further research is necessary to determine the extent to which such care is received by hemodialysis patients as well as an assessment of its quality.

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