DOPPS and the Elderly: Implications for Nephrology Social Work Practice

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Over the past three and a half decades, since Medicare funding became available for people with end-stage renal disease in the United States, the numbers of elderly on dialysis have increased dramatically and now represent well over half of the dialysis population. Beginning in the late 1970s, psychosocial issues and challenges faced by elderly people on dialysis emerged in the literature. Among other findings, these studies identified increased comorbidities and depressive symptomatology, decreased physical and mental functioning, and improved compliance. These studies were limited in size and represented either single facilities or multiple regional facilities. The Dialysis Outcomes and Practice Patterns Study (DOPPS) is an observational, longitudinal study providing a wide range of data on a sample of people on hemodialysis randomly selected from nationally representative samples of dialysis facilities in 12 countries. In the current investigation, DOPPS findings indicate that the mean age of people on hemodialysis in nearly all study countries is at least 60 years, that cardiac disease is one of the most common comorbidities, that elderly patients are at significantly greater risk for malnutrition, and that compliance with treatment schedules is significantly better in elderly people. Health-Related Quality of Life scores demonstrate that physical functioning is markedly decreased, though mental component summary scores did not decrease with age. Finally, risk of death and withdrawal from dialysis are significantly higher for the elderly. Psychosocial evaluation of the elderly and social work intervention to maximize social, psychological, mental, and physical functioning are addressed, as well as end-of-life issues.

INTRODUCTION

In the early days of dialysis, when facilities and funding sources were scarce, elderly people were not considered candidates for dialysis. In the United States, as Medicare funding became available in 1973 and resources were expanded, the numbers and percentages of elderly persons on dialysis markedly increased. By 1989, U.S. Renal Data System (1989) data indicated that patients 60 and older represented approximately 40% of the dialysis population. Less than a decade later (USRDS, 1998), the percentage of patients 60 and older had increased to 45%. In the most recent full-year data available (USRDS, 2003), patients 60 and older represented 60.7% of those on dialysis. Internationally, in data to be presented later in the Dialysis Outcomes and Practice Patterns Study (DOPPS) findings, the mean age of dialysis patients in represented countries is at least 60 years in most countries. Clearly, the increasing numbers of elderly on dialysis require ongoing investigation of the medical, physical, psychological, and social issues faced by this patient group and the identification of effective interventions to be provided by dialysis treatment teams.

BACKGROUND

Approximately three decades ago, research on the special needs of the elderly on dialysis began appearing in the literature (e.g., McKevitt & Kappel, 1978). Early findings indicated that in an urban university medical center facility, the majority of patients were white, female, and most had not completed high school. The overwhelming majority of the elderly patients on dialysis were receiving in-center treatment and were remarkably compliant in following their treatment regimens. Most patients were able to manage self-care activities, though many needed assistance with household and shopping tasks. Among areas identified by patients as needing increased attention were fear of dependency, loneliness, and depression.

In a later study (McKevitt et al., 1986), it was reported that the comorbidities of elderly persons on dialysis are highly significant. In regard to functional capacity, only 32% of patients were found to be totally independent. Compliance among older patients appeared better, with significantly better compliance if living with another adult (rather than alone). Evaluation of mental status revealed that 33% of elderly patients had mild to severe organic impairment and that the elderly experienced increased likelihood of depressive symptomatology. In regard to dialysis modality and quality of life (Nissenson et al., 1990), it was found that there are not significant differences in the quality of life associated with differences in treatment modality of older patients (i.e., continuous ambulatory peritoneal dialysis, continuous cycling peritoneal dialysis, or home or center hemodialysis). However, elderly patients were found to be more likely in need of social and other support services and that receiving these services was an important contributor to well-being.

In a follow-up study (McKevitt et al., 1990), researchers reported that the demographics of elderly patients had changed—they represented an increased portion of the dialysis population, were older, increasingly persons of color, female, and widowed, with even less education and income. In addition, there were increased comorbidities and decreased functional capacity, with three out of four patients demonstrating at least mild depressive symptomatology.

Among a series of studies (e.g., Kutner et al., 1981, 1990, 1997), it was reported that with the exception of African American women, depressive symptoms were more evident among patients aged 55 and older than among patients under age 55. It was also found that a patient's educational level was significantly related to leisure activity scores, psychological affect balance, depressive symptomatology, and perceived control over one's own health. In addition, a significant relationship with age was found for depressive symptomatology, as well as a significant relationship of patients' gender with leisure activity scores (men versus women). It was concluded that the medical challenges associated with undergoing end-stage renal disease therapy may be greater for the older patient due to additional comorbidities and age-related frailty among older persons. It was also noted that older persons are challenged by a number of psychological issues that often accompany aging, including bereavement, social isolation, loss of social status and social roles following retirement, depression and anxiety, and cognitive losses. Finally, it was reported that long-term survival in older patients on dialysis was associated with younger age and lower reports of coronary artery disease as a comorbidity. In addition, survivors had less health limitations in activity, less functional impairment, and more frequent activity and exercise.

THE DIALYSIS OUTCOMES AND PRACTICE PATTERNS STUDY

Noting that previous studies were limited in size and scope, DOPPS provides detailed information on dialysis therapy in a sample of hemodialysis patients randomly selected from nationally representative dialysis facility samples in 7 countries from 1996 to 2001, and 12 countries since 2002. As an observational, longitudinal study, the principal goal of the DOPPS is to collect data about different dialysis practice patterns and their influence on patient outcomes. In DOPPS, older patients are defined in two age groups: 65 to 74 years old and 75 years and older. The following findings compare treatment and outcomes for older chronic hemodialysis patients to those of younger patients (18 to 44 years and 45 to 64 years).

MATERIALS AND METHODS

DOPPS I data were collected from adult (18 years and older) end-stage renal disease patients receiving hemodialysis at 145 dialysis centers in the United States (from July 1996 to January 2001); 21 centers in Germany; 20 centers each in France, Italy, Spain, and the United Kingdom (from May 1998 to November 2000); and 64 centers in Japan (from February 1999 to May 2001). Study facilities were randomly selected within a stratified sampling frame to provide representation by geographic region and facility type. Within these nationally representative samples, longitudinal data were obtained from randomly selected patients. Demographic data, years on dialysis, and comorbidities, including psychiatric diagnoses, were obtained through medical record abstraction. Baseline and follow-up medical questionnaires on practice patterns were completed by each unit's medical director and study coordinator. Among other patient data collected, patients completed the Kidney Disease Quality of Life™ instrument, which includes the SF-36 health survey, to determine the mental component summary (MCS), the physical component summary (PCS), and the kidney disease component summary (KDCS).

A modified subjective global assessment (mSGA) was determined at baseline for each patient, based on caregivers' responses to questions about weight loss and physical appearance and on patient responses to questions about appetite, nausea, energy level, and disease

burden. Based on this information, patients were classified into one of three mSGA categories: normal, moderately malnourished, or severely malnourished. Patient withdrawal rates were calculated as the total number of withdrawals per 100 patient-years of observation time. Noncompliance was defined as skipping one or more scheduled hemodialysis sessions in a month or shortening at least one hemodialysis treatment by 10 minutes or more in a month.

A wide range of additional data was collected on patient outcomes and practice patterns (e.g., vascular access, normalized protein catabolic rate, staffing, and others), although they will not be reported for the purposes of this article. Additional details of the DOPPS study methodology have been described by Young et al. (2000).

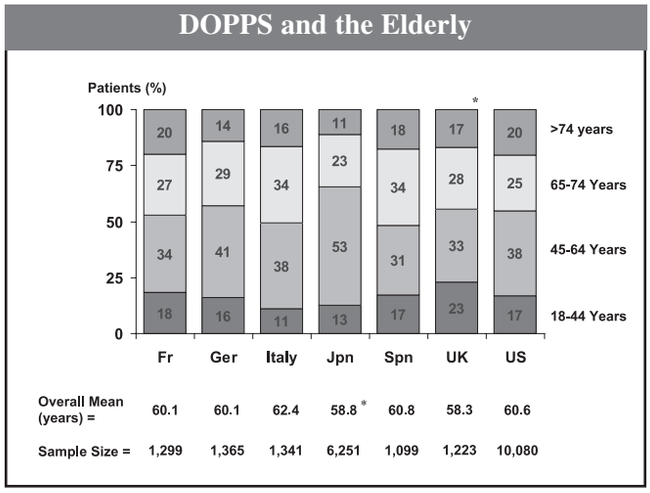
STATISTICAL METHODS

All statistical analyses were performed using SAS version 8.2 (SAS, 1999). Age distributions were calculated from the census of patients in all selected facilities present on July 1, 1999 (n = 22,803). Descriptive statistics on patient demographics, comorbid conditions, adherence, and withdrawal were calculated for the initial cross-section of prevalent patients on hemodialysis (n = 8,615). Nutritional values, laboratory values, dose, and mSGA were examined for patients who had been on hemodialysis for longer than 1 year (n = 7,932). Mortality analysis (n = 17,107) and health-related quality-of-life (HRQOL) models (n = 12,082, i.e., 71% completed the patient questionnaire) included all patients available, with an adjustment for patients in the initial round of data collection and for patients on dialysis less than 30 days. Differences in age groups, demographics, comorbid conditions, nutritional values, laboratory values, mSGA, and HRQOL by age group were examined using mixed models, which accounted for facility clustering. Patient adherence was examined using logistic regression. For the logistic regression models, generalized estimating equations were used to account for clustering at the facility level, assuming a compound symmetry covariance structure (SAS/STAT, 1999). Cox regression was used to model withdrawal and mortality rates. The sandwich estimator was used to account for facility clustering. The Cox models were stratified by country of residence, assuming nonproportional effects on death rates. As noted earlier, analyses were conducted on four different age groups. Patients were censored if they left the study for any reason other than death (such as change in modality, etc.).

RESULTS

Among the seven DOPPS countries, there were relatively small differences in the distribution of age groups in a cross-section of prevalent hemodialysis patients, except a higher prevalence in the 45 to 64 age group in Japan (53% of patients compared with 31–41% in the other six countries; Figure 1). The highest mean ages (62 years in Italy and 60.41 years in France and Germany) and the lowest mean ages (58 years in the United Kingdom and 58.8 years in Japan) were significantly different from the overall average of 60 years ($p > 0.01$).

Figure 1



Age distribution for hemodialysis patients by country. The stacked bar charts show the distribution of age groups in each country for the census of patients studying the study on July 1, 1999. Under each bar is the overall mean age by country. The overall mean age is 60 years. An asterisk indicates average ages that are significantly different from the overall mean at $p < 0.05$. Fr, France; Ger, Germany; Jpn, Japan; Spn, Spain.

Older patients exhibited more comorbid conditions (Table 1). For example, for a prevalent cross-section of patients, the presence of coronary artery disease and congestive heart failure increased steeply with age. The presence of coronary artery disease was more than threefold greater in patients older than 74 than in patients younger than 45 (52% versus 14.7%). The prevalence of congestive heart failure was more than twice as high in patients older than 74 than in patients younger than 45 (43.2% versus 19.8%). The portion of hemodialysis patients who were male or black declined significantly with increasing age.

Table 1. Demographics and Comorbidities by Age Category for Prevalent Patients

Measure	Patients (%)				Linear trend (per 10 years older)
	18ñ44 years	45ñ64 years	65ñ74 years	>74 years	
Demographics					
Male (%)	61.2	59.0	53.8**	51.8*	-2.1%***
Black (%)	25.5**	18.5	14.8**	12.8***	-1.8%***
BMI (kg/m^2)	23.2***	23.8	23.8	22.9***	-0.07†
Comorbid conditions (%)					
Coronary artery disease	14.7***	33.1	43.7***	52.0***	+8.0%***
Congestive heart failure	19.8***	25.2	33.9***	43.2***	+4.8%***
Other cardiac disease	18.6***	28.9	39.2***	48.7***	+6.3%***
Hypertension	73.7	71.5	74.9	74.0	+0.4%
Cerebrovascular disease	5.6***	13.2	20.7***	22.5***	+4.2%***
Peripheral vascular disease	7.1***	19.4	28.0***	29.1***	+5.0%***
Diabetes mellitus	15.7***	34.8	41.7***	31.1***	+4.3%***
Lung disease	3.8***	7.2	12.5***	15.1***	+2.4%***
Cancer (other than skin)	2.5***	6.4	10.5***	15.4***	+2.7%***
HIV/AIDS	1.9***	0.5	0.1†	0.0†	-0.4%***
GI bleed	4.1***	6.7	8.0	8.5	+1.0%***
Neurological disorder	9.9***	5.4	8.7***	13.9***	+0.7%**
Psychiatric disorder	22.1	18.6	17.9**	17.9**	-1.4%***

Reference group for all statistical comparisons = patients ages 45–64 years.
†$p < 0.05$, *$p < 0.01$, **$p < 0.001$, ***$p < 0.0001$

Table 2. Indirect Nutritional Parameters by Age for Patients > 1 Year ESRD

Measure	Patients (%)				Linear trend (per 10 years older)
	18ñ44 years	45ñ64 years	65ñ74 years	>74 years	
Malnourished (%)					
Moderately	6.8	7.2	8.4	11.1*	+0.9%†
Severely	4.4	3.8	4.9	7.8***	+1.4%***
Laboratory Measures					
Serum albumin (g/dl)	3.92†	3.84	3.76†	3.65***	-0.07***
Serum creatinine (mg/dl)	12.1***	10.6	9.3***	8.1***	-0.8***
Hemoglobin (g/dl)	10.7	10.5	10.6	10.6	-0.0
Dialysis Dose (sp Kt/V)	1.37	1.37	1.38	1.39	+0.005†
nPCR (g protein/kg body weight/day)	1.09*	1.07	1.02***	0.98***	-0.03***

Compared to patients 45-64: †$p < 0.05$, *$p < 0.01$, **$p < 0.001$, ***$p < 0.0001$.
nPCR, normalized protein catabolic rate.

For indirect measures of nutritional status, older patients were more likely to be moderately or severely malnourished (Table 2). Of patients older than 74, 11.1% were moderately malnourished compared with 6.8% of patients ages 18 to 44 and 7.8% were severely malnourished compared with 4.4% of patients ages 18 to 44. In regard to adherence, older patients skipped treatments significantly less frequently than patients ages 45 to 64 (Table 3). Shortening dialysis sessions occurred significantly more frequently in the youngest study group (ages 18 to 44). In contrast to the improved adherence of treatment with age, withdrawal from dialysis greatly increased with age (Table 3). Patient withdrawal from therapy was significantly higher at ages above 64. Particularly for patients older than 74, more than five patients per every 100 patient-years withdrew from dialysis. This trend was significant with and without adjustments for patient characteristics.

Table 3: Patient Adherence and Withdrawal Measurements, Prevalent Patients

Measure	18–44 years	45–64 years	65–74 years	>74 years
Non-adherence measures (%)				
Skipped ≥ 1 treatment per month	7.4**	3.9	2.5	2.5†
Shortened ≥ 1 treatment by 10 minutes or more per month	20.3***	11.8	9.6*	10.8†
Withdrawal				
Withdrawal/100 patient-years	0.5	0.8	2.1***	5.1***

†$p < 0.05$, *$p < 0.01$, **$p < 0.001$, ***$p < 0.0001$
(compared to patients ages 45-64)

HRQOL declined with age for the PCS, even after adjustment for demographics, comorbid conditions, and country of residence (Table 4). Patients over the age of 74 had adjusted PCS scores almost 7 points lower than patients younger than 45. In contrast, the adjusted MCS did not decrease significantly with age. Patients over age 74 had MCS scores of 44.7 while patients ages 18 to 44 had MCS scores of 44.5. In addition, as indicated by a simple summary of all kidney disease component scores from the Kidney Disease Quality of Life™, the burden of kidney disease does not affect the quality of life of elderly patients more than younger patients.

As expected, the risk of death was higher in elderly patients when stratified for country and adjusted for demographics, both with and without adjustments for comorbid conditions (Table 5). The relative risk for ages 75 and older versus 18 to 44 was 4.9, without consideration of differences in comorbidities and 3.7 (i.e., 3.7-fold higher) if comorbidities were the same for these age groups (adjusted for comorbidities), which indicates that age is a significant predictor of mortality independent of the fact that older patients have more comorbid conditions. The risk of death was more than twofold higher in patients older than 75 compared with patients ages 45 to 64.

Table 4: KDQOL-36 Summary Scores by Age Category, All Patients

KDQOL-36 Sumary Scales	18–44 years	45–64 years	65–74 years	>74 years
Physical Component Summary	39.2***	36.2	34.2***	32.5***
Mental Component Summary	44.5†	45.4	44.6	44.7
Kidney Disease Component Summary	63.1	62.7	63.3	64.9***

Adjusted for sex, race, country of residence, comorbid conditions listed in Table 1, incidence status.

†$p < 0.05$, *$p < 0.01$, **$p < 0.001$, ***$p < 0.0001$
(compared to patients ages 45-64)

Table 5: Relative Risk of Mortality by Age Category, All Patients

Age Category	Adjustments: Demographics* — Relative Risk of Mortality	Demographics* — p-value	Demographics and Comorbid Conditions** — Relative Risk of Mortality	Demographics and Comorbid Conditions** — p-value
18-44 Years	0.48	<0.0001	0.58	<0.0001
45-64 Years	1.00	Reference	1.00	Reference
65-74 Years	1.56	<0.0001	1.41	<0.0001
>74 Years	2.36	<0.0001	2.15	<0.0001

*Adjusted for sex, race, incident status, and stratified by country of residence.

**Also adjusted for comorbid conditions listed in Table 1.

DISCUSSION

Earlier individual and multiple dialysis facility studies in the United States (cited previously) identified increased comorbidities, mortality, and compliance in the elderly, while at the same time identifying decreased physical functioning. In addition, psychosocial issues, such as an increasingly diverse patient population, patients with limited income and education, increased evidence of depressive symptomatology, and the need for social support, were found.

On a very broad scope, DOPPS presents the first detailed information on dialysis therapy in a sample of patients on hemodialysis of all ages randomly selected from nationally representative samples of dialysis facilities in seven countries that together comprise nearly 70% of the world's hemodialysis population. In DOPPS, mortality was still higher among elderly patients when the analysis was adjusted for patient demographics and stratified by country of residence. The latter step was necessary because patients' survival differs markedly between some countries. Not only do race and general mortality differ among countries, but genetic precondition, diet, social environment, family life, religion, and a host of other factors differ as well. Therefore, different mortality rates among countries should be considered to evaluate the effect of age-related problems among elderly patients on hemodialysis.

Elderly patients are expected to have higher mortality rates because they suffer from more comorbidities. However, even after adjustment for comorbidities, mortality was still substantially higher in elderly patients. In DOPPS, patients on hemodialysis older than 75 had mortality rates more than twice as high as those of patients ages 45 to 64 ($p > 0.0001$). DOPPS data also demonstrates that the prevalence and severity of cardiac comorbidities increase mortality risk in elderly patients. Vascular problems were frequently found and their prevalence increased with the age of patients. In the group of patients older than 75, 52% had coronary artery disease, 23% had cerebrovascular disease, and 29% had peripheral vascular disease.

Serum albumin levels were significantly lower for patients ages 65 to 74 and 75 and older when compared with younger age groups (Table 2). A significantly higher percentage of elderly patients were found to be in a moderately or severely malnourished state, as measured by the mSGA. Low body mass index and serum albumin are among the strongest predictors of early death and morbidity in patients on dialysis (Leavey et al., 2001) and may contribute to the increased mortality in elderly patients on dialysis.

Reduced physical activity was indicated in elderly DOPPS patients because PCS was substantially lower with older age. The reduced physical condition accompanying hemodialysis likely limits physical activity in elderly patients. However, this does not exclude a possible benefit of exercise in elderly patients on dialysis. For example, it was reported (Moreno et al., 1996) that improvement of anemia under erythropoietin therapy resulted in a comparable increase of physical function in patients 60 and older, compared with those younger than 60. Furthermore, a pilot physical therapy consultation program (Pianta & Kutner, 1999) found that exercise regimens consistent with individual patient needs and functional difficulties could be developed and implemented for elderly patients.

Lower PCS scores of elderly patients were not mirrored by a decrease in MCS. Nonetheless, for all patients on dialysis, the incidence of depression and its significant relationship to mortality and hospitalizations has been identified in DOPPS (Lopes et al., 2002). In addition, the KDCS was comparable in younger and older patients, indicating that elderly patients do not suffer more from kidney disease burden in comparison to younger patients. Whether this can be attributed to differing age-related expectations and life cycle stages (e.g., for the elderly, demands of raising children, dealing with vocational and employment issues, etc., are generally moot) is interesting to speculate.

Finally, despite the results in the MCS and KDCS scores, the rate of patient withdrawal from hemodialysis increased with age and was fivefold higher for patients 75 and older compared with the reference group (ages 45 to 64). The reasons for this difference in withdrawal rates were not determined in this study, although it has been reported elsewhere (Leggat et al., 1997a) that nearly 50% of withdrawals were preceded by an acute medical complication, while the remainder followed a chronic decline. Additional detailed prospective data collection is needed regarding psychological, social, economic, ethical, religious, and other factors that may contribute to the higher rate of withdrawal from dialysis.

IMPLICATIONS FOR SOCIAL WORK PRACTICE

Managing the many challenges faced by elderly patients on dialysis is, undoubtedly, a multidisciplinary effort requiring various levels of coordination between physicians (nephrologists, diabetologists, vascular surgeons, cardiologists, and rheumatologists, among others), pharmacists, dietitians, nurses, and social workers. Protocols to manage adequacy of dialysis, hypertension, anemia, bone disease, depression, and diabetes, for example, and referrals to specialty services are among the essential issues addressed in the care of patients on dialysis. Recognizing and addressing the physical and psychological demands of that care and the effects of aging on physical and psychological functioning are essential in caring for elderly patients. This is the arena in which nephrology social workers focus their efforts.

Because health care systems and funding, cultural factors, and availability of community resources and services vary from country to country, for the purposes of this article, the following assessment and intervention strategies are presented relative to elderly patients in the United States.

The first step in planning social work intervention is always a comprehensive assessment and this is essential in working with elderly persons on dialysis. Five key areas for evaluation are presented in the following sections.

Social Issues

Living situation: Is the patient living independently, with a partner, family member, etc.? Is the living situation adequate and appropriate for the patient's needs/limitations? Is the housing safe, accessible, and affordable?

Support system: Is there adequate support to meet the patient's needs for supervision and/or assistance? Who is available for emergency assistance? Are personal aide and/or homemaker services needed? Is the patient a major source of support and care for a spouse, disabled adult child, grandchildren, etc.?

Social needs and meaningful activities: What social outlets does the patient have? Is the patient involved in family, social, senior, community, exercise, or church activities? Does the patient have particular hobbies or interests? Have previous activities declined as the patient's functional status changes? What modifications or adaptations might be made for the patient to resume or continue meaningful and enjoyable activities?

Income: What are the sources of income? Is income adequate to meet needs? Are all possible income sources in place? Are there significant financial stresses or debt? Based on income, might the patient be eligible for additional federal, state, and/or voluntary agency programs?

Health care coverage: Is current coverage adequate and affordable? Are all available health care benefits in place? Are medications covered? What are the copays and are they affordable? Are such benefits as home services, nutritional supplements, and assistive devices included in the coverage?

Transportation: Does the patient have a safe, affordable transportation plan? Are special services needed, such as wheelchair transport? Is the patient eligible for special services? What is the patient's transportation backup plan?

Health Care and Compliance Issues

Comorbidities: What medical diagnoses other than chronic kidney disease does the patient have? What are the implications for obtaining and coordinating care with other medical and hospital services? How do other medical problems impact functional status? Is the patient/support system able to manage the demands and limitations of other medical problems and treatment?

Compliance: What is the patient's compliance history? What have been prior barriers to compliance? Is the patient able to comprehend and complete treatment requirements? Are there literacy, cultural, and/or language issues? Are there memory, visual, or hearing limitations? Is social support available to assist patients in understanding and implementing compliance strategies?

Malnutrition: Is the patient mild, moderately, or severely malnourished? Is the patient able to shop for groceries, cook, etc.? If not, is assistance available to provide meals? Is food affordable? Are dietary supplements indicated and affordable?

Functional Status

Self-care: Is the patient able to safely and adequately manage self-care activities such as bathing and dressing? Can the patient manage cleaning, cooking, laundry, and shopping? Is the patient able to make appointments, obtain and correctly take medications, manage a dietary regimen, and manage finances?

Ambulation and safety: Is the patient able to ambulate safely and access transportation resources? Do they use and/or need mobility aides (e.g., a cane, walker, or wheelchair)? Are they at risk for falling and/or household accidents? Do visual or hearing deficits put them at risk for injury?

Mental and Psychological Functioning

Mental status: Is the patient alert and oriented? Are memory and/or comprehension skills impaired? Is the patient able to follow through on recommendations, resource applications, etc.? Have any mental status changes coincided with new medication and/or increased doses?

Psychological status: Does the patient have a history or current symptoms of mental health problems (e.g., depression, anxiety disorder, drug/alcohol dependence, etc.)? Does the patient/family report symptoms associated with initiating dialysis or the ongoing demands of treatment? Has the patient been prescribed psychotropic

medication and/or received counseling services? If so, has the patient found intervention helpful?

Legacy/End-of-Life Issues

Life reviews: Is the patient interested in and able to leave a written or recorded family history, life story, or words of wisdom to pass along to future generations? Are there regrets or alienation of family members the patient wishes to address and reconcile?

End-of-life care: What are the patient's wishes regarding end-of-life care? Does the patient have an advance directive? Has the patient discussed his/her wishes with family members? When does the burden of illness and care outweigh the benefit of continuing dialysis for this patient?

Withdrawal from dialysis: Has continued physical and/or mental deterioration raised the issue of withdrawing dialysis therapy? Has a catastrophic acute incident resulted in unlikely recovery? Are hospice services appropriate?

In addition to social work assessment through interviews, many excellent screening and assessment tools for physical and mental functioning, depression, and quality of life are available and are noted in DOPPS and the other research reviewed earlier. Once the assessment is completed, social work intervention is designed to meet identified goals.

MAXIMIZING SOCIAL FUNCTIONING

Living situation: If the patient is not living in a safe, affordable, and accessible housing situation, senior subsidized housing, handicapped equipped housing, or assisted living facilities may offer good alternatives. If a patient chooses to remain at home, removing hazards; installing grab bars, handrails, and ramps; and obtaining assistive devices may be indicated. Resources such as utility assistance, weatherization, and security measures may be needed.

Support system: Essentially all elderly patients (at least, at times) need the support of family and friends to deal with the treatment demands and functional capacity changes. Meeting with, educating, and soliciting participation of support members is key in securing their understanding and involvement. In addition to support system members, referrals to homemaker and personal aid services may be needed. Senior centers and adult day care facilities may be appropriate for socialization and supervision.

Social needs and meaningful activities: Often, due to loss of a spouse, declining health, and/or physical limitations, patients withdraw from enjoyable social activities. Assisting patients in identifying ways of overcoming barriers and reconnecting with friends, clubs, church activities, etc., is often important in enhancing a patient's quality of life. Activities in senior housing and senior centers are often positive outlets. Patients with limited vision may benefit from community resources for the visually impaired to access low-vision clinic services and support groups to cope with limitations. Identifying meaningful activities, hobbies, and interests and assisting patients in finding ways to pursue them is also important. Often community organizations, such as churches, have food pantries or mentoring programs in which seniors can volunteer.

Income: Many elderly patients have very limited incomes. Even with social security, work pensions, veterans' pensions, etc., in place, patients may not be able to manage basic needs. Referrals for federal, state, and local programs for food stamps, energy assistance, emergency financial assistance, etc., are often indicated.

Health care coverage: Many elderly patients may have and/or be eligible for Medicare, Medicaid, employer-related group plans for retired people, or private Medicare supplement plans. Close collaboration with facility business office personnel to assess adequacy of coverage is essential. Medicaid buy-ins for Medicare, kidney organizations, or state kidney programs may assist with Medicare and/or supplemental insurance premiums. For medication needs, Medicare D premium, deductible, and copay subsidies may be available. Helping patients understand, apply for, and utilize these programs is extremely important in helping them secure needed coverage and benefits. Health care coverage plans and medication programs are often confusing and in a state of flux, requiring constant monitoring and planning with patients and families.

Transportation: Planning appropriate and affordable dialysis transportation is often a challenge for elderly patients. Patients may no longer drive (and in some instances, should not be driving) and families may not be available to consistently assist. Utilization of public transportation vans, wheelchair vans, and/or Medicaid wheelchair transport is often indicated. Assisting patients and families in identifying emergency and/or backup transportation plans is essential, as is ongoing monitoring, as functional status and safety issues may change.

MAXIMIZING CARE AND COMPLIANCE

Comorbidities: As noted in DOPPS and the other research reviewed, elderly patients often have multiple comorbidities requiring monitoring and management. Planning for additional appointments, procedures, surgeries, and treatment regimens can be confusing and stressful. Clarifying and assisting elderly patients and their families in accessing various specialty services is extremely important. Coordinating needed services, such as diabetic education and follow-up and rehabilitation services, will facilitate needed care. In addition, social work coordination and advocacy with specialty services can help ensure that patients have access to the information and resources available through these specialty clinics. In the case of nursing home patients, close coordination with nursing home staff members is essential in addressing medical, nutritional, and psychosocial needs. Finally, nephrology social workers, aware of the implications of comorbidities on the functional capacity of the elderly, are in a position to provide needed support and assistance to patients and families in coping with the additional burdens and demands presented.

Although compliance of elderly patients with dialysis schedules has been found to be better than other age groups, other components, such as diet and medication, need to be monitored and addressed. Collaboration with staff in adapting teaching materials to meet patient needs (e.g., literacy/language skills, visual limitations, impaired hearing, comprehension and memory deficits, etc.) may enhance patient understanding and compliance. In addition, overcoming barriers, such as financial limitations, and soliciting the participation of the patient's support system contribute to improved compliance.

As noted in DOPPS findings, malnutrition is a significant issue for the elderly. While loss of appetite, among other factors, influences intake patterns, accessibility to food, interest in/ability to cook, and living alone without the social aspect of eating, may also contribute to decreased intake. Family assistance with cooking, homemaker services, Meals on Wheels and senior center meals offer access to nutritious meals. If dietary supplements are needed and not affordable, referrals to state programs, voluntary agencies, and/or provision of samples may be appropriate.

MAXIMIZING MENTAL AND PSYCHOLOGICAL FUNCTIONING

Impaired mental functioning (e.g., decreased memory and comprehension skills) is an important issue for some elderly patients and particularly for those living alone. If mental impairment exists and there is inadequate social support, patients may require assisted living or nursing home placement. While rare, elderly patients can face physical abuse or financial exploitation and, if suspected, this requires referral to state protective services.

Although the psychological well-being of elderly patients has been found in DOPPS and other research to be comparable to that of younger patients, it remains an area for intervention for some elderly patients, who are often coping with the loss of a spouse, adult children, and friends, as well as loss of independence and social isolation. Addressing increased anxiety, depressed mood, and/or other psychiatric problems for referral, medication, and/or counseling may be an important component of care.

MAXIMIZING FUNCTIONAL STATUS

As noted in previously reviewed research as well as DOPPS, it is well documented that the physical status and functional capacity of the elderly on dialysis are significantly less than younger patients. Physical and occupational therapy referrals may be indicated to increase independence in activities of daily living. Assistive devices for mobility, home safety measures, and home care assistance from family, friends, and/or community resources may be needed to maximize the functional status of elderly patients. Supervised exercise programs through dialysis facilities, the YMCA, or rehab programs to increase strength and flexibility may be essential in maintaining functional capacity. Finally, home equipment such as railings, bath bars, and elevated toilet seats may increase patient independence and safety.

MAXIMIZING LEGACY/END-OF-LIFE ISSUES

All elderly patients have a life story to tell. In addition to family history, either written or often oral, most elderly patients have survived an economic depression, multiple wars, some have experienced racism and segregation, and almost all have raised families, worked, and contributed to their communities. Encouraging and facilitating patients in recording their life story, either in writing or tape recording, can be a positive, life-affirming activity and an important history to leave their families.

Withdrawal from dialysis and end-of-life issues are addressed in another article in this issue, thus these issues are covered briefly here. Encouraging patients to consider an acceptable quality of life and under what circumstances they would wish to discontinue treatment are important issues to explore. Facilitating the completion of an advance directive and convening a family meeting to discuss the directive lays the groundwork for possible future circumstances and decision making. When the decision is made to discontinue dialysis, social work involvement, support to patients and families, and referral to hospice services are important components in easing the emotional impact of impending loss.

CONCLUSION

The elderly comprise a large and increasing percentage of the dialysis population. Among other challenges, they face increased comorbidities; decreased functional status, changes, and loss associated with aging; and increased mortality rates. Managing their medical, dialysis treatment, nutritional, and psychosocial needs and problems of elderly patients, in turn, challenge all members of the dialysis treatment team. The commitment and time devoted to addressing the special (and often changing) needs of elderly patients will determine not only the length of life, but perhaps more importantly, the quality of that life.

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