What is psychonephrology?

Norman B. Levy

Department of Psychiatry, Los Angeles County/University of Southern California, Los Angeles - USA

**ABSTRACT**

Patients on forms of dialysis and those who receive kidney transplants face many stresses connected with their illness and forms of treatment. These stresses may result in a variety of psychiatric disorders and other problems. It is the duty of all nephrology personnel to be aware of these problems, and inquire about them so that the appropriate treatment may be instituted.

The major stresses of dialysis involve conflicts of dependency and independency, unrealistic expectations, the medical regimen and the many losses these patients sustain.

As a consequence of these stresses and other factors, patients experience depression, anxiety, sexual problems, psychosis, problems in rehabilitation and uncooperativeness. The therapies of these disorders include individual and group therapy and the use of psychologically active medications. The pharmacokinetics of medications used to treat these patients require special consideration of the route of elimination, whether or not the medication is dialyzable and the protein binding of the medicine.

Renal transplant patients may experience the same psychiatric problems, but usually of a lesser degree. Their special stress is termed “The Sword of Damocles” that refers to anxiety associated with the wait and worry of organ rejection.

**Key words:** Psychonephrology, Stress of dialysis, Depression, Rehabilitation

**INTRODUCTION**

The term psychonephrology derives from the Greek roots for the mind, “psyche”, and the kidney, “nephros” and refers to psychiatry problems of people suffering from kidney disease, in particular those with kidney failure who are maintained on forms of dialysis or who are transplanted.

The major stresses of dialysis are:

1. Dependency/independency conflicts. Dialysis places the patient in the unusual position of abject dependence upon a machine, a procedure and a group of professional personnel (1). Those people who by nature have a great need to be independent suffer the most from such a setting. In deciding on a form of treatment for renal failure for the very independent patient, consideration needs to be given to transplantation or a self-care form of dialysis such as CAPD or home dialysis. For the very dependent patient, dialysis may encourage the sick role, making rehabilitation more difficult to accomplish (2).

2. Unrealistic expectations. Physicians, like other people, tend to project on to others their own set of values. For example, if you voted for a candidate in an election, you may not understand why others voted for the opposition candidate. We, nephrology professionals are products of prolonged education and are generally middle class. Our patients usually are of lower class and education than we and may not share our value system. We would probably strictly adhere to a dialysis diet if we needed that form of treatment. But others may not share our wish to sacrifice in order to live longer and have less morbidity. Therefore, we should set goals for our patients that are realistic for their value system, not necessarily ours (3).

3. The medical regimen. As we all know it is a difficult one. Dialysis patients must stick to a strict form of treatment continuously but also take medications religiously, engage in various investigatory studies and be on a very prohibitive diet (4).
4. People on dialysis sustain many losses. Most patients do not return to outside work, school and/or household activities that they did before falling ill. From the standpoint of work, there are many losses associated with cessation of that activity. It means not only a loss of money, but also, in many, a loss of gender identity and of self-esteem. Many men attach a sense of masculinity in the work they do and in being the “bread-winner” of their family. Similarly in women, change in appearance and cessation of menses and diminishment of fertility may affect their sense of femininity (5).

The psychiatric complications seen in patients on dialysis and renal transplantation include the following:

1. Depression. The term can refer to either of three entities, an affect, a mood or a disorder. It is used here to denote a disorder, i.e., a persistent mood associated with other symptoms, such as poor self-esteem, a sleeping and/or an eating disorder and/or feelings that life is not worth living with or without thought and/or acts of self-destructiveness. Depression is the most common psychological/psychiatric disorder that is seen in the medically ill. Depression often occurs in response to losses, and as previously mentioned, these people sustain many of them (6).

2. Anxiety is a response to “danger” and experienced in humans when something frightening or unhappy is in the offing. It often occurs when new staff arrives, when patients are hospitalized, while waiting for biopsy results and similar situations not infrequent in the lives of dialysis and transplant patients.

3. Suicidal behavior occurs more frequently in dialysis patients than in both the general population and most other medical illnesses (7, 8).

4. Sexual problems in these people have been noted since the inception of dialysis. The observation of Scribner than one-third of hemodialysis patients are totally impotent, one-third partially impotent and one-third without impotence has been upheld in subsequent studies. In addition decreased libido is commonly seen in members of both genders (9).

5. Psychosis fortunately is not seen as a consequence of dialysis but may occur in states of delirium caused by metabolic imbalance.

6. Rehabilitation is a difficulty in some of these people. As previously mentioned, those who have a pre-morbid personality of great dependency need may derive a certain satisfaction in being placed in the dependent position of being a dialysis patient, making return to outside work, school and/or household activities problematic.

7. Uncooperativeness is the bane of nephrology personnel. Few people fully appreciate good health and when stricken with illness many respond with anger wondering, “Why me?” Gratitude is often short-lived or never occurs in response to having a means for survival for illnesses that were previously uniformly fatal. The general population often fails to adhere to diets, especially diabetics and very often dialysis patients (10).

**Therapy**

**General considerations**

Dialysis personnel need to be cognizant of the fact that their patients may have problems that they wish to talk about and make time available for this to happen. Often, this is all that needs to be done. Other times referral to a psychiatrist or psychologist may be in order. Although better treated by a specialist in this area, many of these disorders are responsive to medications that may be ordered by nephrologists if psychiatric help is not available. These include the treatment of anxiety, depression and impotence. Both individual and group therapies have been shown to be effective in this medical population. It may be conducted, if not by behaviorally trained personnel, by other staff (11).

**Pharmacology**

The two main issues here are: is the medicine dialyzable? If so, it will be removed by the process of dialysis. If the medicine is a small molecule such as lithium, the process of dialysis will remove it. If the only site of excretion of the medicine is the kidney, again, such as lithium, it could accumulate and be toxic. In the case of lithium, however, two negatives produce a positive. It should be given immediately after a dialysis run and will remain in the body until removed by dialysis.

Pharmacokinetics, the passage of medication throughout the body involves the following considerations: bioavailability, drug distribution, protein binding, metabolism and excretion. Fortunately, virtually all medications used for psychiatric disorders, with few exceptions are fat soluble, pass the blood-brain barrier, are not dialyzable, are detoxified by the liver and not ordinarily excreted by the kidneys, but are removed in bile in feces. All this good news does not remove other pharmacokinetic considerations, the most important of which in this population is protein binding. Most medications bind with protein, primarily blood albu-
min, and in the bound state are not therapeutic or toxic. However, in kidney failure there is a diminution in the body’s ability to bind medications with protein. Therefore, at a given dose more medication is available for therapy as well as for toxicity than for people with normal renal function. Therefore, the rule of thumb is that one should not use more than three-fourths of the maximum dose of a medication than one would use in a person without kidney failure (12).

**RENAL TRANSPLANTS**

Although many of the stresses and psychiatric problems of these patients are similar to those on dialysis, some are specific for transplant patients. In general, those who receive a kidney transplant can lead a much more normal life than the dialysis patient. No longer do transplant patients need to be involved in a medical regimen with a severely restricted diet or be in a treatment that literally tethers them to a machine. They tend to have the same sexual problems as dialysis patients, but to a much lesser degree. But they do face some difficulties unique to their form of treatment. The so-called “sword of Damocles” hangs over their heads in terms of the impending possibility of organ rejection. They are placed on a regimen of immunopression that reduces their resistance to illness, making them more prone to infectious and neoplastic illnesses. Further, in those who do not cooperate religiously to taking their medications, organ rejection may occur (13, 14).

Conflict of interest statement: None declared.

**Address for correspondence:**
Norman B. Levy, MD
Professor of Clinical Psychiatry
Los Angeles County/University of Southern California
1200 N. State St. Room 10-621
Los Angeles, CA 90033, USA
nephropsyc@aol.com

**REFERENCES**


© Società Italiana di Nefrologia