REVIEW ARTICLE

Psychological aspects of dialysis: does cognitive appraisal determine the overall outcome?

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KEY WORDS

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ABSTRACT

Psychological aspects of renal replacement therapy have been studied by numerous researchers. However, many of these studies are of poor quality, involve small study groups, or focus only on a narrowly defined hypothesis. Due to a lack of general conceptual framework, it is difficult to generalize and interpret the data, especially in terms of the cause-and-effect relationship. Further research is required to assess how patients with end-stage renal disease cope with dialysis-related stress. Particular emphasis should be placed on the preparation of experimental studies and clinical trials with a longer follow-up.

Introduction End-stage renal disease (ESRD) is a growing medical and social concern.[1] The phenomenon of population aging in the developed countries and an increased prevalence of comorbidities have resulted in a greater incidence of ESRD.[2,3] Advances in medical technology and health management with subsequent prolongation of the status quo, further support this tendency and allow a patient with ESRD to live a longer and more active life. Transplantation, continuous ambulatory peritoneal dialysis (CAPD), and hemodialysis (HD) are the current options for renal replacement therapy (RRT) in patients with ESRD. The demand for transplantation has always been greater than the number of donor kidneys, which limited the availability of this treatment option.[4] Thus, dialysis remains the mainstay of RRT. HD requires that a patient is periodically connected to the artificial kidney machine, which involves hospital stays of 3 to 5 h, 3 to 4 times a week. In contrast, patients on CAPD utilize their own peritoneum as a dialysis membrane. Patients administer the dialysis fluid themselves using a preimplanted peritoneal catheter. This brief description already implies that different stressors and psychological outcomes will accompany both types of RRT.[5] An interesting question is whether any of the RRT modalities is superior in terms of providing optimal psychological adjustment and outcome. Should a physician take into account psychological aspects when deciding which therapy to use in a particular patient? The question seems to be valid, considering that a good health-related quality of life (HRQoL) during dialysis therapy is strongly emphasized in the total assessment of RRT benefit. In this review, we present a few psychological aspects related to stress management during dialysis.

The process of coping with dialysis There are numerous studies on psychological aspects of ESRD but only a few investigators have attempted to describe the process of coping with ESRD-related stress.

Cognitive psychology offers a number of approaches to conceptualize the process of dealing with the disease. Lazarus and Folkman introduced the interactive model of coping with the disease-related stress, which is one of the most popular concepts in psychology.[6] They defined coping with an illness as a dynamic process, during which there is a constant evaluation of the disease as a stressor that places a demand on the subject's resources. The cognitive perception of being chronically ill can have 3 dimensions: loss, threat, and challenge.[6,7] These 3 dimensions are assessed simultaneously, but with a different value assigned to each. There is also an individual predisposition to perceive all demanding situations in a particular manner. This is called a "disposition trait of

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cognitive stress appraisal" and is a relatively universal and constant feature of psychological structure. Emotional status, personality, social context, and situational variables are other factors that affect the perception of illness as a loss, threat, or challenge according to the Folkman theory. Once the cognitive appraisal is made, the patient adopts a strategy that will be used to cope with the stressor.[6,8] The optimal goal of this approach is to reduce negative emotions and transform the perception of disease from threatening to neutral. Such an assessment is made from the patient's point of view and leads to the application of a strategy that helps to cope with disease-related stress. Thus, it is possible that the subject will employ a strategy that will later prove inappropriate. Denial is a classic example of maladaptive strategy.[9] It has been shown that in hemodialyzed patients the preferential use of certain strategies to cope with ESRD-related stress results in different body gain during the time between dialysis.[10]

Coping with disease-related stress is a complicated, multi-step process.[6] It is particularly difficult for a patient to experience the start of dialysis, perceived as a new and threatening situation. These initial emotions are then replaced by depression and fatigue caused by RRT. Thus, strategies aimed at reducing negative emotions are employed at the beginning of treatment,[11] followed by strategies that focus on technical aspects of dialysis.[11] As the coping technique is mastered, illness-related stress is reduced and the HRQoL improves.[12]

The cognitive approach to coping with illness is a relatively new concept.[6,7] It took approximately 10 years for it to evolve and become a recognized alternative to behavioral or somatic theories of stress.[8] After its formulation, only a few questionnaires have been created to study the coping appraisal in general, and they were developed only for specific study settings.[8,13] Initially, there was only one tool available to study the coping process in the context of transactional theory of stress – the Ways of Coping Questionnaire. Its psychometric characteristics are less than optimal.[13-15] Nevertheless, it was used by some researchers to describe the coping process.[16] An alternative questionnaire, the Cognitive Stress Appraisal, was developed by Wrzesniewski et al. and used to study the perception of stress in different populations of patients in the clinical setting.[17] This questionnaire was specifically designed to assess the cognitive appraisal and is based on the modified, interactive theory of coping with illness. Today, more robust questionnaires can be used, including the Coping Inventory of Stressful Situations or Coping with Health Problems.[14,18-20]

Emotional outcomes of coping with end-stage renal disease It is widely known that the prevalence of depression is higher in patients on RRT than in the general population.[21-23] Risk factors for depression include lack of social support, prior depression, and what the patient perceives as lack of control over the situation.[23,24] Depression results in a higher prevalence of peritonitis in CAPD as well as a more pronounced change in interdialytic weight gain, dietary nonadherence, and shorter survival in HD.[25] There is a strong correlation between depression and mortality, which may be compared to the correlation between mortality and clinical and laboratory markers for dialysis adequacy, e.g., Kt/V.[25] The reasons for such a strong correlation are unclear. The importance of anemia, aberrancies in activity of dihydropteridine reductase, melatonin release abnormalities, or changes in serum albumin levels have all been implicated in this process.[23,25-27] Interestingly, the correction of anemia using erythropoietin treatment does not reduce symptoms of depression, which suggests that in some patients these 2 processes are independent to some extent.[28]

It is not clear whether a depressive response to dialysis is always pathological.[24] Initiation of RRT induces several high-intensity stressors. Diet restriction, constant exposure to dialysis process, and fear of death are common sources of distress in ESRD patients.[12,23,29] An initial response to this onslaught of stressors involves increased anxiety, confusion, denial, and depression.[30,31] How is it then possible to differentiate between the normal adaptive depression in response to RRT and the pathological one? Long-term survival, the ability to transform major ESRD-related stress into motivation to better adhere to treatment, and favorable biochemical parameters are the recognized hallmarks of adaptive adjustment to RRT.

Health-related quality of life in the dialyzed patient The HRQoL is frequently used to measure the psychological outcome of RRT. However, before we further analyze this issue, this term needs to be properly explained. Quality of life is a personal perception of how fulfilling one's life is. It is a subjective perspective. The HRQoL can be understood as the analysis of perception through the impact of disease in general. Alternatively, only selected variables that constitute health-related values may be analyzed.[13] In this case, a researcher will use a special questionnaire to evaluate the patient's perception of well-being with respect to depression, feeling of energy, optimism, etc. Most studies on the HRQoL in ESRD used the second approach. Initially, these studies were conducted on relatively small groups of patients or had other serious methodological flaws. However, in 1999, the NECOSAD study (Netherlands Cooperative Study on Adequacy of Dialysis) established new standards.[32] A carefully characterized, homogenous cohort of patients was selected. The entry criteria were well defined, and the effect of several demographic and physiological variables was controlled using sophisticated statistical analysis. The study involved over 200 subjects. Its publication was accompanied by 2 other reports that focused on similar psycho-

logical aspects of RRT.[33,34] All investigators used a robust questionnaire: SF-36 – The Short Form Health Survey. It is a relatively simple tool, with 2 equivalent versions, which allows for a follow-up with the alternative version.[35] However, several language-specific versions are not available. The questionnaire consists of 36 items that allow to assess the intensity of 8 different types of medical problems.[35] However, there is a different number of items for each scale. For example, "physical impairment" requires answering 10 questions, whereas for "pain" only 2 answers are needed. Furthermore, the data obtained are nonparametric. Unless data transformation is applied, a nonparametric test has to be used to reject a null hypothesis. Some authors used parametric statistics, but the application of parametric statistics to nonparametric data increases the possibility of type 1 error. The above problems may be addressed by using an alternative questionnaire to study the HRQoL. The Notthingham Health Profile, Health Utility Index, or Quality of Well-Being are among the most frequently cited generic tools.

The available studies have shown that patients on RRT have different perceptions of the HRQoL,[32-34] depending on a modality, sex, race, age, and the level of physical activity. Women and older subjects have worse perception of the HRQoL. The main factors involved in a less favorable perception of the HRQoL were related to a low level of physical activity, pain sensation, and sleep disturbances. These areas should be targeted by medical interventions in the future.

Concluding remarks The studies reviewed in this paper were designed to analyze a particular component of the psychological process that develops in a patient coping with ESRD. However, do the current studies really allow us to assess the psychological impact and to design interventions aimed at improving psychological well-being in this group of patients? A common problem is that the majority of these studies are cross-sectional. Thus, any implication of which process is a cause and which is an effect is speculative. Only clinical experiments or longitudinal observation can answer these questions. Clinical experiments may be unethical, while longitudinal studies require intense work and a follow-up. Most studies do not use a conceptualized strategy to describe psychological processes. In the field of health psychology, factors such as stimulus, stressor, interventions, emotion, strategies, outcomes are frequently linked using a theoretical concept. An excellent example is the theory of coping with illness formulated by Lazarus. Other examples of analyzing conceptual framework can be found in any classic textbook on health psychology.[13] Such a structure allows to better understand the cause-and-effect relationship. There is a paucity of data that analyze the effect of various interventions on psychological outcome. The role of a nurse, psychologist, or social worker has to be emphasized and clearly defined in terms of psychological outcome. Moreover, studies addressing the role of ancillary health providers in improving psychological responses to RRT may give additional insights into the mechanisms that underlie the effects of RRT on psychological well-being of the dialyzed patient.

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Psychologiczne aspekty dializ – czy ocena poznawcza wpływa na wyniki leczenia nerkozastępczego?

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chroniczna niewydolność nerek, ocena poznawcza

STRESZCZENIE

Psychologiczne aspekty dializoterapii były poruszane w wielu pracach badawczych. Wiele z tych badań nie spełniało jednak wysokich standardów metodologicznych, gdyż obejmowały niewielką grupę pacjentów albo opierały się na bardzo wąsko zdefiniowanej hipotezie badawczej. Brak ogólnej hipotezy badawczej wiążącej szereg aspektów psychologicznych i medycznych powoduje, że dane trudno uogólnić, a ustalenie związków przyczynowo-skutkowych staje się prawie niemożliwe. Dlatego potrzebne są nowe projekty naukowe, oceniające, jak pacjenci z terminalną niewydolnością nerek radzą sobie ze stresem psychologicznym związanym z dializami. Szczególny nacisk powinien być położony na zaprojektowanie badań eksperymentalnych oraz obserwację pacjentów przez dłuższy czas.

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