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DIALYSOTHERAPY EFFECT ON THE QUALITY OF LIFE FOR RENAL PATIENTS

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Abstract: The purpose of this essay is to examine how dialysis treatment affects patients' quality of life at the Department of Nephrology. The course of chronic renal disease and its management greatly influence the standard of living for dialysis patients. Renal insufficiency consequently results in numerous restrictions on patients' social, intellectual, and physical activities. Patients with chronic kidney disease have longer lifespans thanks to renal replacement therapy.

Keywords: dialisotherapy, quality of life, nephrology, chronic renal disease.

Introduction

The majority of patients currently starting dialysis treatment are elderly people with numerous cardiovascular complications. These people had to struggle with many diseases for a long time before starting dialysis. Most of them are over 65 years old and 20% are over 75 years old [1]. After hearing the diagnosis of chronic kidney disease, patients face a difficult stage of therapy, which is renal replacement therapy.

Chronic kidney disease and its treatment methods play an important role in shaping the quality of life of dialysis patients. As a result, renal failure causes many limitations in the physical, mental and social activities of patients.

In Poland, over 25,000 patients receive renal replacement therapy, of which approximately 33% are patients with an active kidney transplant, approximately 58% are hemodialysis patients, and 5% are patients undergoing peritoneal dialysis. Once renal replacement therapy is started, the lives of patients with chronic kidney disease are reorganized. The patient must adapt to the changes and learn to organize the time of his day again [2].

Renal replacement therapy is divided into dialysis or kidney transplantation. The work focuses mainly on the quality of life of patients during dialysis, which is also divided into peritoneal dialysis and hemodialysis.

In both therapies, the blood is separated from the dialysis fluid by a semi-permeable membrane that does not allow many compounds to pass through. This allows the removal of harmful metabolic products, electrolytes, excess water and other undesirable substances from the blood, which are not removed by natural filters such as the kidneys.

For kidney dialysis to be effective, it must be performed several times (usually three) a week at a dialysis center. Dialysis lasts on average about 5 hours, and about 50 liters of blood flow through the dialyzer (about 2-2.5 liters are outside the body at a time). Hemodialysis is a therapeutic procedure during which unnecessary substances accumulated in the blood are removed, mainly metabolic products and excess water.

This is done in a special filter, called a dialyser, made up of thousands of very thin tubes through which the patient's blood flows. Around the tubes flows a special fluid with a carefully selected chemical composition, the so-called dialysis fluid [3]. Before hemodialysis, the patient is weighed, and the weight gain since the previous dialysis indicates the amount of water accumulated. After the needles are inserted, they are connected to two flexible tubes that are connected to the dialyzer. Blood flows from the patient to the apparatus through one drain, and purified blood returns through the other. To prevent the blood from clotting in the device, it is necessary to administer an anticoagulant (usually heparin). During hemodialysis, a nurse is present and the procedure is carried out under the supervision of a physician. After hemodialysis, the needles are removed and the patient is weighed again.

Hemodialysis treatment requires discipline on the part of the patient, especially in terms of limited water and salt intake and the need to regularly report for the procedure at the appointed times. The patient must accept these limitations already in the period of preparation for hemodialysis [4].

Peritoneal dialysis (PD) is a method of removing toxins and excess fluid from the body using the natural filtration capacity of the peritoneal membrane lining the abdominal cavity from the inside. There are tiny holes in this membrane through which harmful waste products can be removed from the body.

Dialysis is performed by filling the peritoneal cavity with dialysis fluid. The fluid is heated to body temperature on special heaters in manual dialysis (CADO) or automatically by a cycler in automatic dialysis (ADO). Then, the dialysis fluid flows through the catheter (a small, soft silicone tube) and enters the peritoneal cavity, where the blood is purified by diffusion and convection. This type of dialysis is possible because the blood flowing through the blood vessels of the peritoneal membrane is able to transfer excess water and harmful metabolic products to the dialysis fluid.

Before starting manual and automated dialysis, the patient is thoroughly trained by the treatment center. The doctor and nurse make sure that the patient correctly performs the next steps of the exchange and knows how to care for the catheter opening, which ensures the safety of therapy and minimizes the risk of complications. Most patients are able to self-replace and operate the cycler without difficulty.

If in doubt, a doctor or nurse is available by phone. In addition, in ADO therapy, the nephrologist and the dialysis nurse have access to a special platform with therapy data and can remotely monitor the course of therapy, modify the therapy recipe if necessary, correct the patient's incorrect behavior or invite the patient for a follow-up visit if they find such a need. As a standard, follow-up visits to the clinic usually take place once every 6-8 weeks [5].

Complications of renal replacement therapy

Unfortunately, renal replacement therapy is associated with complications that may also hinder the quality of life of patients. Many studies have looked at the rate of complications during dialysis. The most common symptoms reported by hemodialysis patients were muscle spasms (very common: 18%, common: 21%), skin dryness and itching (very common: 21%, common: 22%), and an increase or decrease in blood pressure (very common: 29%). , common: 27%). Patients on peritoneal dialysis showed the same symptoms but experienced less of them, i.e. muscle cramps (very common: 18%, common: 21%), dry skin and itching (very common: 22.5%, common: 12.5% %) and an increase or decrease in blood pressure (very common: 10%, common: 10%). It was also shown that hemodialysis patients were more likely than peritoneal dialysis patients to notice the following symptoms: sleep disturbance (very common: 30%, common: 19%), pain (very common: 15%, common: 17%) and difficulties in living (very common: 4%, common: 6%) [2].

Dialysis has an effect on cardiovascular diseases. Many patients die suddenly from arrhythmias or asystole. They are subjected to numerous stresses such as electrolyte shifts, changes in osmolarity, frequent hypotension events,

and this puts a strain on the heart. Complications are 30 times more common in dialysis patients than in the general population. Another common complication is catheter-related infections. Many patients experience dysfunction of the immune system. This makes it easier for microbes to start infections in the body. They often involve vascular access, and antibacterial locks are used in catheter prevention. Anemia is also a permanent symptom. What can make the patient weak [6].

Electrolyte levels also change during dialysis. The patient retains a certain amount of water in the body, which must be monitored in order not to conduct it. There is a decrease in sodium and chlorine. After 3 days, the level of both electrolytes drops by about 3 units. The same happens with potassium, phosphorus and magnesium. The only element whose concentration is increased is calcium. These parameters should be tested during dialysis therapy, as disturbances in the electrolyte balance may bring further complications. [7]

Differences in hemodialysis and peritoneal dialysis

Hemodialysis is a method performed 3-5 times a week in a hospital. It requires transport, time and commitment from the patient. Peritoneal dialysis is a method that patients use at home. Before the possibility of this therapy, they are taught for a certain period of time how to change the dialysis bag, how to care for hygiene and what to do in case of inconvenience. Despite greater independence, they are also under the supervision of the hospital.

Studies have produced conflicting results regarding differences in mortality between the two methods; studies with better adjustment for comorbidities showed no difference in mortality or better survival with peritoneal dialysis, especially in the first 2 years after starting dialysis. On a per-treatment basis, both hemodialysis and peritoneal dialysis are effective in removing solutes and water depending on the clearance characteristics of the dialysis membrane (artificial or peritoneal, respectively) and the time allowed for exchange by the membrane. In the long term, the effectiveness of peritoneal dialysis may be limited by recurrent peritonitis and loss of peritoneal clearance or residual renal function, while the effectiveness of hemodialysis may be limited by difficulties in obtaining or maintaining vascular access and poor haemodynamic tolerance [12].

The selection of peritoneal dialysis or hemodialysis will usually be based on patient motivation, desire, geographic distance from an hemodialysis unit, physician and/or nurse bias, and patient education. A peritoneal dialysis survival advantage is seen early in the course of renal replacement therapy, but after 1 to 2 years, patient survival on peritoneal dialysis or hemodialysis is equivalent and influenced by comorbidity and age. The high rate of technique failure in peritoneal dialysis remains primarily a function of infectious complications although peritonitis rates are now low in experienced peritoneal dialysis programs. Infection and access issues are the most common problems for patients on hemodialysis, and, especially for hemodialysis patients using central venous catheter, high mortality and morbidity are to be expected. Consideration of peritoneal dialysis as a bridge for access maturation and initial treatment in late referral patients should be entertained in an effort to avoid central venous catheter. Nephrologists' efforts should be focused on educating themselves and their patients about the opportunities for home modality therapies and reducing the reliance on catheters for long-term hemodialysis access.[13]

Dialysis and the quality of life of nephrological patients

Chronic use of hemodialysis causes frequent contact with the hospital ward. This method of treatment significantly affects the current lifestyle and the possibility of many complications. These factors determine the quality of life of patients. A person has to adapt to a new life situation, which is largely subordinated to the disease. A variable that has a significant impact on the physical, mental and social domains is the length of hemodialysis treatment.

The best quality of life was achieved by patients in whom this therapy did not exceed one year, while the lowest - over 2 years. This condition may be caused by complications resulting from long-term hemodialysis treatment and the specificity of the therapy itself, which I mentioned earlier. In the research presented by Dr. Sapilak assessing the quality of life of patients over 18 months, he describes a gradual improvement in the quality of life during the first 12 months, and after exceeding the 15th month, a gradual decrease of this level. The results of the research conducted by the author also concerned the increase in ailments after the ninth month of hemodialysis therapy, such as anxiety and depression, which affected the assessment of the quality of life [8].

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Quality of life It is conditioned by a multidimensional concept and includes the assessment of physical, mental, social, spiritual and functional well-being. Both objective (health condition, clinical picture, diagnosis) and subjective (mental, physical, social, interpersonal) factors affect the quality of life, but it is the somatic condition, physical fitness, social relations and mental well-being that are analyzed when assessing the quality of life. life. The quality of life in chronic diseases is related to the broadly understood medical, occupational and psychosocial rehabilitation, and its level depends on the type of disease and the possibility of conducting therapy, the duration of the disease, the patient's age, individual psychophysical conditions and the patient's immunity, the patient's ability to take self-care, from resources and environmental support.

The family and relatives from the patient's environment are a supportive system. In this concept, the family community refers to all those from whom the patient expects support. The lack of understanding and support from the closest people gives the patient a sense of hopelessness and low social value. This can lead to depression, indifference of the patient to the further fate of the treatment and lack of willingness to fight.

Another important factor affecting the quality of life is professional activity. As a result of the research, it was found that only 64% of dialysis respondents were professionally active. The research conducted by Kapka-Skrzypczak et al. showed that in the dialysis group all participants of the survey worked before starting treatment. However, after the start of treatment, 60% of hemodialysis patients were professionally active and 40% did not work. [9].

The subject of many studies on the quality of life of patients on chronic dialysis is also the impact of well-being, the level of positive and negative emotions and mood disorders. Most of the published data indicate severe mental impairment in hemodialysis patients. The lowest level of the analyzed characteristics was presented by patients undergoing peritoneal dialysis and healthy individuals. Researchers have reported psychosocial problems in chronic hemodialysis patients and found that the most common emotions experienced by this group of patients were depressed, resigned and helpless - all hallmarks of depression.

What was troubling was the fact that this type of treatment made patients feel anxious about having too many responsibilities and not being in control of their own lives. Disorders developed more often in patients with a negative attitude towards their situation, who did not try to deal with new problems. Other studies have shown that patients on hemodialysis while being treated by a clinical psychologist perceived a higher quality of life and had higher mental health parameters [10].

The results of many studies indicate that the quality of life depends on the method of dialysis, and patients undergoing peritoneal dialysis experienced much less fatigue and insomnia compared to hemodialysis patients. The great advantage of peritoneal dialysis is the comfort of doing it at home. This method can be adapted individually to each patient, which allows the patient to undertake professional activity and study. At the same time, the use of peritoneal dialysis reduces the frequency of the patient's contact with the hospital, unlike hemodialysis patients, which significantly affects their well-being. The study shows that 94.1% of patients undergoing peritoneal dialysis positively assessed their well-being the day after the procedure, while as many as 43.6% of hemodialysis patients assessed their well-being as not very good [9].

Numerous studies of depressive disorders in patients with end-stage renal disease have shown that patients on peritoneal dialysis were most likely to suffer from depression. Despite the lack of correlation, patients undergoing hemodialysis more often experienced negative emotions, such as anxiety and aggression, than patients undergoing peritoneal dialysis. However, patients undergoing hemodialysis felt less fear about their future compared to the second group of patients. This is most likely due to resignation and a lack of willpower to

start new ones, although these patients were faced with difficult challenges related to chronic dialysis. Furthermore, studies have shown that peritoneal dialysis patients were more likely to show a greater will to live than hemodialysis patients. The relationship between depression and the risk of death in the dialysis population has been extensively studied. Depression can lead to adverse clinical outcomes, affecting adherence to dialysis and medication regimens, altering immune system function, and its deleterious effects on nutritional status. Studied dialysis patients with depression had markedly elevated plasma levels of pro-inflammatory cytokines, in particular interleukin (IL)-6, which may be associated with adverse cardiovascular outcomes. Treating depression in the dialysis population is difficult. Dialysis patients diagnosed with depression should ideally be treated by a multidisciplinary team consisting of nephrologists, psychiatrists, dialysis nurses, physical therapists, occupational therapists, patient support groups and medical social workers [11].

Conclusion

The function of the kidneys is to remove the end products of metabolism and toxic substances from the body, as well as to maintain the osmotic balance. Their chronic insufficiency disturbs the balance of the whole organism - homeostasis. Accumulating harmful metabolic products can even lead to the destruction of the renal parenchyma. Renal replacement therapy consists of replacing kidney function with dialysis, haemofiltration or kidney transplantation. There are two methods of dialysis: hemodialysis and peritoneal dialysis. Patients with chronic kidney failure who are undergoing dialysis suffer from many health and psychosocial problems. Due to the specificity of the disease and the course of treatment, the life of patients is significantly limited. The degree of limitation may result from the dialysis technique used. The analysis of the quality of life showed that the group of hemodialysis patients experienced much worse symptoms related to the disease and the course of treatment than the group of peritoneal dialysis patients. This indicates that peritoneal dialysis is more beneficial in terms of greater comfort and better quality of life for dialysis patients.

The new world and new inventions mean that patients do not have to limit themselves only to their home or hospital in their region. Patients treated with hemodialysis can travel after prior notification and admission for treatment to a dialysis center in a new place of stay. A network of reception centers for the so-called "guest dialysis" covers the whole world, especially tourist areas. The costs of such treatment are usually covered by insurance. It is also possible to perform hemodialysis at the patient's home (home hemodialysis). This involves the need to have appropriate equipment (a home hemodialysis machine and a water purification machine used to prepare the dialysis fluid), help at home by trained people and 24-hour supervision by a specialist centre.

Despite the inconvenience that may affect patients on dialysis. It is also a form of therapy that prolongs the lives of renal patients and helps them modify their lives with severe kidney disease in such a way that they will benefit more than complications or inconveniences.

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