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NEPHROLOGY - REVIEW

Management of anxiety and depression in haemodialysis patients: the role of non-pharmacological methods

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Abstract

Anxiety and depression in patients undergoing haemodialysis can be reduced by a variety of treatment methods, including pharmacological therapy, cognitive-behavioural therapy, regular exercise and relaxation techniques, such as Benson's relaxation method and acupressure treatment. Additionally, intradialytic exercise training programmes have a positive effect on patients' physical and psychological functioning. Moreover, social support from family and social environment, spirituality and religiosity, tele- nursing programmes and participation in network support groups frequently lead to a reduction of anxiety and depressive symptoms in these people. Finally, the provision of education and information to dialysis patients by renal professionals and a systematic psychiatric evaluation of these individuals can lead to early diagnosis and treatment of depressive symptoms.

Keywords Anxiety · Depression · Haemodialysis · Cognitive-behavioural therapy · Exercise · Relaxation techniques · Social support · Education

Introduction

Anxiety and depression in people undergoing haemodialysis can be reduced by different methods, such as therapy with antidepressants, psychological interventions, regular exercise [1–3], as well as therapy with relaxation techniques [4].

Psychological interventions can help them modify their illness perception and reduce their depressive symptoms [5], since patients' perceptions affect their coping strategies and willingness to participate in self-management of their disease [6]. Additionally, physical exercise leads to improved self-care ability and sleep quality, as well as decreased fatigue [7, 8] low level of depression and increased quality of life [9].

Pharmacological treatment with antidepressants is usually difficult for dialysis patients, since they have a risk for drug- drug interaction duo to the variety of medicines they take. Additionally, those with low glomerular filtration rates have a risk of an accumulation of toxic metabolites in their blood since protein bound included in antidepressants is not appropriately removed by the dialysis procedure [3].

Antidepressants are not proposed for the primary therapy of mild depression since there is little evidence to support their effectiveness. Thus, the suggested therapies for mild and moderate depression are brief psychological interventions, including brief cognitive-behavioural therapy and counselling. Additionally, in moderate and severe depression a combination of antidepressants and cognitive-behavioural therapy is more effective than taking antidepressants alone [10].

Cognitive-behavioural therapy

Cognitive-behavioural therapy is the most effective and frequently used psychotherapeutic method for reducing anxiety and depression in haemodialysis patients [11], while it improves their compliance with dialysis treatment [12]. It includes well-structured methods in order to help patients reorganize their negative thoughts and obtain control over them [11]. Cognitive-behavioural therapy includes a variety of methods, such as techniques of relaxation, cognitive restructuring and exposure which can be applied individually or in groups [13]. Duarte et al. [11]

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in a randomized trial with 41 patients on haemodialysis who followed 12 weekly sessions of cognitive-behavioural group therapy, found a significant reduction of depressive symptoms in these individuals.

Additionally, Chen et al. [14] undertook a randomized controlled interventional study with 72 dialysis patients with sleep disturbances, of whom 37 received cognitive-behavioural therapy three times a week lasting 6 weeks and 35 received sleep hygiene education. Findings showed that patients who received cognitive-behavioural therapy had an improvement in their sleep problems and a reduction in inflammation and oxidative stress.

Moreover, cognitive-behavioural therapy in combination with exercise activities can lead to an improvement of anxiety symptoms in dialysis patients [15, 16]. Thus, it can be incorporated as a part of haemodialysis treatment and can be conducted by specialized mental health professionals [17].

Cognitive existential group therapy

Bahmani et al. [18] in an experimental study with 22 hemodialysis patients, found that a cognitive existential group therapy increased the level of hope and reduced the score of depression in these individuals. Hope is a significant factor in cognitive adjustment among patients with chronic illnesses, since it leads to increased compliance, positive feelings and high body immunity. Patients with hope set goals and try to meet them. Additionally, their presence in a group helps them overcome their negative feelings, since they realize that there are individuals with similar life experiences [18].

Physical exercise

A regular exercise can reduce anxiety and depression among people on haemodialysis, since it can increase the levels of serotonin, norepinephrine and dopamine, which in turn can stimulate the brain to produce endorphins making people feel happiness and relaxation [19]. Exercise also reduces fatigue and pain in musculoskeletal system [20], increases strength of muscles, while it leads to an improvement of physical and mental function [21] such as the function of the cardiovascular system [20].

Similarly, aerobic exercises improve physical well-being, nutritional status and inflammatory cytokines [4]. Lopes et al. [22] in a prospective cohort study with 5763 patients, found that aerobic exercises had a significant association with low depressive symptoms, while individuals who were following regular physical activity for 1 or more times per week had increased sleep quality and low mortality rates.

Intradialytic exercise training programmes

Exercise during dialysis sessions leads to movement of uremic toxins through the dialyser from the tissue to the vascular compartment which improves adequacy of haemodialysis, blood pressure, anaemia, inflammation and clearance of phosphorous [23]. Ouzouni et al. [24] conducted a study with 35 patients on haemodialysis aiming to assess the effects of intradialytic exercise training on the quality of their life. The results showed that a 10-month intradialytic exercise training programme improved physical functioning and psychological well-being in patients on haemodialysis, leading to an improvement of the quality of their life.

Additionally, Kouidi et al. [25] who explored the influence of an exercise training programme on emotional parameters and heart rate variability in 44 patients on haemodialysis showed that a 1-year exercise training programme reduced emotional distress and improved heart rate variability in these people.

Moreover, Giannaki et al. [26] in a randomized controlled trial with 32 patients on haemodialysis with restless legs syndrome found that an exercise training programme for 6 months decreased depressive and restless legs syndrome symptoms in individuals with uremic symptoms, while aerobic exercises improved patient's physical performance.

In addition, Dziubek et al. [20] conducted a similar study with 28 patients undergoing haemodialysis, aiming to investigate the effects of a 6-month physical exercise on depression and anxiety. Their findings showed that an exercise training programme for 6 months was related with low rates of depressive and anxiety symptoms in people undergoing haemodialysis, and particularly in those who had old age. Similarly, Rhee et al. [23] in a non-randomized prospective trial with 22 haemodialysis patients found that a 6-month intradialytic exercise programme had a positive effect on patients' physical health, intradialytic hypotension and depression levels.

However, daily physical activity is reduced in dialysis patients, with less than 10% of them having a regular exercise programme [21]. Chiang et al. [19] who conducted a cross-sectional study with 270 patients with Chronic Kidney Disease found that dialysis patients who did not participate in exercise activities had high possibility to develop depression, making them unable to finish their daily activities without help [27]. Similarly, Anand et al. [8] in a cohort study with 1678 dialysis patients found that individuals with low physical activity had more possibilities to experience insomnia, restless leg syndrome and depression. Thus, there is a necessity for a greater patients' awareness of the benefits of physical exercise on their physical and psychological status [20].

Social support

Psychological status of haemodialysis patients is frequently affected by the support they receive from their family and social environment [28]. Social support improves their self esteem [4] and helps them cope effectively with stressful situations [29, 30]. Additionally, it leads to a reduction of depressive symptoms [31] and has a positive affect on patients' compliance with dialysis treatment [32–34].

Carayanni et al. [35] who explored depression in 360 older people in Greece, found that meeting friends leads to a reduction of anxiety, while going on excursions and weekly church attendance are protective factors of depression. Additionally, Perales-Montilla et al. [36] in a quantitative study with 46 patients on haemodialysis and 30 people without a relative disease found that social support was related with a reduction in respiratory and musculoskeletal disorders in dialysis patients since it improves physiological functioning, leads to a decrease in negative emotions and improves survival rates.

However, low levels of emotional support are associated with greater levels of depression [37]. Lilympaki et al. [38] who explored the impact of social support on anxiety and depression levels in 258 people on haemodialysis found that patients with high rates of anxiety and depression received reduced support from their family and friends. Similarly, Liu et al. [27] in a cross-sectional study with 227 patients on haemodialysis found that those with bad mood received low social support from family and social environment. Moreover, Radwan et al. [31] who undertook a cross-sectional study with 300 dialysis patients showed that the perceived feeling of reduced social support significantly affected the development of depression among these individuals.

Spirituality and religiosity

Spirituality is a personal search for understanding questions about life and its meaning. Religiosity is the way a person believes and practices a religion via attending church, praying, reading books and watching religious programmes on television. Patients with chronic illnesses often rely on faith in order to find support and relief in their pain [39]. Santos et al. [40] who conducted a cross-sectional study with 161 patients on haemodialysis found that religiosity and spirituality had a strong association with low prevalence of depression, decreased risk of hospital admissions and mortality, better immune function and increased quality of life.

Patients with religious beliefs have the chance to communicate with other people and receive psychological support, which releases them from their psychological stress [19], since they talk about their concerns and worries [41]. Additionally, patients with higher levels of religiosity and spirituality usually receive better social support via their large social network [39], while the use of positive religious coping methods lead to a decrease in depression among dialysis people [40]. However, Chiang et al. [19] in a cross-sectional study with 270 people with Chronic Kidney Disease showed that patients with no religious beliefs were 2.5 times more likely to have depression than those with religious beliefs.

Tele- nursing programmes

Tele- nursing programmes are related with low anxiety, depression and stress among patients on dialysis, since they help them effectively manage their symptoms and early recognize any complications of their treatment [42]. Rajkomar et al. [43] conducted a qualitative study with 19 patients undergoing home haemodialysis and their caregivers. The results showed that an on call contact of patients with their dialysis nurses and technicians during home haemodialysis helped them in their treatment management and created positive feelings to them.

Network support groups

Patients' participation in network support groups can help them create new supportive relationships [33]. An online self- help treatment by a health care professional is equivalent to face-to face psychological interventions and leads to an effective provision of information concerning patients' needs [44].

Relaxation techniques

Benson's relaxation method leads to a reduction of stress and anxiety in patients on haemodialysis since it includes a variety of rhythmic breathing techniques of relaxation, such as slow breathing, deep breathing, breathing meditation and abdominal breathing [45].

Additionally, Hmwe et al. [46] in a randomized controlled trial with 108 patients who were receiving hemodialysis found that acupressure treatment three times a week for 4 weeks reduced anxiety, depression and psychological distress in these individuals. Acupressure is a technique of stimulating 'acupuncture points' by applying pressure, using hands, fingers or thumb [46].

Education-information

The provision of education can help dialysis patients participate in their self care and adopt holistic approaches for earlier detection and treatment of depression [47, 48]. Espahbodi et al. [49] contacted a prospective, experimental intervention study including 60 patients on dialysis. Their findings suggested that the levels of depression and anxiety significantly reduced after the provision of education to

these people, since patients who are informed about their disease can regain a sense of control over their treatment and feel less vulnerable [50].

Barnieh et al. [51] in a qualitative, descriptive study with 189 patients on or nearing dialysis and their caregivers found that they needed more information about their treatment options, the complications of dialysis treatment, the symptoms of their disease, as well as their effective management and future prognosis. However, more than 70% of patients who have depression and anxiety are unaware of their symptoms and has no information about the proper treatment [52]. Song et al. [53] contacted a longitudinal observational study with 210 patients undergoing haemodialysis. The results showed that since patients recognized their depressive symptoms, they communicated them to health professionals and improved their self-management.

Polikandrioti et al. [34] who explored the level of information in 650 hemodialysis patients claimed that individuals bellow 40 and between 41 and 50 years old, those who had increased educational level and had not any difficulties with their family and social environment were very informed about their treatment. However, Xhulia et al. [54] who contacted a quantitative study with 141 patients on hemodialysis found that the need for information was also significant for patients between 61 and 80 years old. However, renal professionals usually give more information to patients of a younger age who have more ambitions and cope with a variety of activities in their daily life [34].

Screening for depression

It is of great significance a systematic psychiatric evaluation of depression and anxiety in haemodialysis patients at early stages for effective treatment [55, 56]. Chan et al. [57] in a retrospective cohort study with hospitalized dialysis patients with depression found that an early diagnosis of depression was related with reduced in-hospital mortality among dialysis people. This may happens because patients who are regularly screened for depression may probably have an attentive care by health professionals, which leads to early diagnosis and treatment of acute and chronic co morbid diseases. Finally, a planned dialysis initiation has a positive impact on depression since patients have an opportunity to initiate haemodialysis in a planned manner with permanent vascular access [58].

Conclusion

This literature review focuses on the role of non-pharmacological methods in the management of anxiety and depression in haemodialysis patients. Cognitive-behavioural therapy, regular physical exercise and relaxation techniques are effective methods for reducing anxiety and depression in these individuals. Additionally, intradialytic exercise training programmes have a positive effect on patients' physical and psychological functioning.

Moreover, social support from family and social environment and the provision of education and information to dialysis patients usually lead to a reduction of anxiety and depressive symptoms. Finally, there is a need for a systematic psychiatric evaluation of patients on haemodialysis for early diagnosis and treatment of depressive symptoms.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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