

Treatment Options for Depression in Patients with Chronic Renal Disease and End-Stage Renal Disease on Dialysis: A Mini Review of Clinical Trials and Meta-Analysis

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Abstract

Chronic renal failure and end stage renal failure is an established healthcare issue with a growing prevalence. Depression is particularly common in the already physically and mentally morbid patient population with negative adverse consequences on their health and quality of life. Treatment of depression in these patients is not well established in literature and rigorous clinical trials are lacking. Review of available RCTs on treatments modalities were reviewed. Pharmacologic treatments are comparable to non-pharmacologic treatments regarding efficacy. However pharmacologic treatments pose an additional risk to this already medically debilitated patients. It is imperative to consider psychological interventions first when treating depression in patients with chronic renal failure and end stage renal disease patients.

Keywords: Chronic renal failure, end stage renal disease, depression, psychological treatment, pharmacologic treatment, clinical trials.

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INTRODUCTION

Chronic kidney disease (CKD) affects about 10% of the global population [1]. In an analysis conducted in 2017, the global prevalence of CKD was found to be approximately 9.1% [3]. It has been estimated that CKD prevalence has increased by about 23% between 1990 and 2017 [3].

Prevalence estimates of depression in CKD vary widely across studies. In a meta-analysis that included a total of 249 populations (55,982 participants), the point prevalence of depressive symptoms among patients with CKD was 20.3%, and about 39% when assessed using clinical interviews and self- or clinician-administered scales respectively [1]. Depression is the most common psychiatric illness in patients with CKD, being more common than in patients with other chronic diseases, including coronary artery disease, cancer, and diabetes [2]. Physical and psychological stress among this patient population results in significantly reduced quality of life and the development of depression [1]. Depression in this patient population has also been found to be associated with increased negative adverse outcomes, including

increased poor adherence to treatment, decreased quality of life, and increased mortality and hospitalization rates [2].

Despite the increased prevalence of depression and associated adverse health outcomes, depression detection and treatment administration remain low. One issue that can be particularly challenging for clinicians is the use of antidepressant medications in the treatment of CKD. This is attributed mostly to the scarcity of large controlled trials and the hesitancy of clinicians to offer treatment.

This mini review discusses the currently available clinical trials of different treatment options for depression in patients with CKD.

Pharmacologic Treatments

The most recent RCT concerning the use of sertraline as a treatment option was conducted in 2019. That study compared the effects and adverse events of sertraline vs. cognitive behavioral therapy (CBT) in patients on hemodialysis. This study included patients from multiple dialysis centers, and 120 patients were randomized into the trial. Forty percent of participants

in the sertraline group and 29% in the CBT group achieved remission. However, when comparing both groups, sertraline appeared to be modestly better than CBT. Additionally, participants in the sertraline group more frequently reported adverse outcomes than patients treated with sertraline who were not on dialysis [4].

Another RCT included 201 participants with CKD who were not on dialysis at the time of the study. The patients were randomized into either the sertraline or placebo groups. After about 12 weeks of follow-up, they found that treatment with sertraline did not significantly improve depressive symptoms compared with placebo. They also reported a more frequent occurrence of side effects in the sertraline arm, with nausea, vomiting, and diarrhea being most commonly reported. The authors concluded that the results did not support the use of sertraline to treat depression in this patient population [5].

In another RCT including 30 patients with CKD on hemodialysis randomized into either the sertraline or placebo group, only 8 patients in the sertraline group and 13 in the placebo group completed the study, suggesting a higher dropout rate in the treatment group. They found that depression scores on the Beck Depression Inventory and the Montgomery-Asberg Depression Rating Scale improved significantly in both groups after 6 months of follow-up. However, there was no significant difference between the groups [6].

Citalopram was also studied in a randomized clinical trial of 44 hemodialysis patients randomized into treatment and psychological training groups. The hospital-administered anxiety and depression scale (HADS) was used at baseline and after 3 months. Both the Citalopram and psychological-training groups showed a significant decrease in depression, anxiety and HADS total scores. However, both groups showed a comparable decrease in depression and anxiety scores, with no significant difference between the groups [7].

These results are in line with increasing evidence from other well-known trials studying depression treatment among patients with other chronic diseases, such as congestive heart failure, asthma, and ischemic heart disease, that found that selective serotonin reuptake inhibitors were no more efficacious than placebo [5].

Non-pharmacologic treatments

One meta-analysis included randomized controlled trials of different psychosocial interventions for the prevention and treatment of depression in patients with CKD on hemodialysis. This meta-analysis included 26 studies comprising a total of 1449

participants. Interventions included CBT, counseling, exercise, and relaxation techniques, among other non-pharmacologic treatments [8].

The authors concluded that CBT and relaxation techniques improve depressive symptoms with moderate certainty. CBT additionally improved the sense of well-being and quality of life measures. On the other hand, exercise and counseling therapies helped improve depressive symptoms with a low certainty [8]. In another prospective trial, intradialytic exercise improved depressive symptoms as measured by the Beck Depression Inventory, and the change was statically significant [10].

Another meta-analysis that included 8 RTC (612 participants) on psychological interventions for the treatment of depression in hemodialysis patients was conducted in 2016. The primary outcome of this analysis was depression improvement. The secondary outcomes were sleep quality, fluid restriction adherence, and quality of life. The study revealed that psychological interventions (predominantly CBT) were significantly effective in improving depressive symptoms in hemodialysis patients. Furthermore, these interventions also improved adherence to fluid restriction and interdialytic weight gain in these patients. The study did not find statistically significant evidence that psychological interventions improved either sleep quality or quality of life [9].

DISCUSSION

A large number of studies have looked into the mental status, including depression, of patients with chronic kidney disease and end-stage renal disease on dialysis. It is well established that these patients have both physical and psychological burdens that are often overlooked. On the other hand, the literature on the prevention and treatment of depression in this highly morbid patient population is limited, partly because of the lack of rigorous clinical trials on the safety and efficacy of different pharmacologic interventions and because of the practitioners' hesitancy to properly diagnose or treat depression in these patients due to safety concerns. Additionally, these patients already suffer from symptoms that can be explained by the decline of renal function alone. Morbidity among patients with chronic renal failure and patients with end-stage renal disease is high, and psychiatric illnesses including depression are frequently observed. It is therefore important to reduce the symptoms of depression. Currently, antidepressants are still the main therapy for depression. However, only a handful of clinical trials on the safety and efficacy of antidepressants have been conducted in this morbid population. Additionally, many patients cannot maintain drug therapy because of its chronicity and side effects.

This review looked into RCTs on both pharmacologic and non-pharmacologic treatments of depression in this patient population. In all of them, the reported effectiveness was limited, and the adverse effects of the medications studied were higher than in the general population. Interestingly, these interventions did not differ from other interventions like CBT, relaxation techniques, counseling, or exercise therapy, which are safer alternatives to treat depression than pharmacologic treatments.

CONCLUSION

In conclusion, non-pharmacologic treatments are comparable in efficacy to pharmacologic treatments but have little to no side effects. However, RCTs on this topic are limited, and thus more research on the effectiveness and safety of antidepressants in patients with chronic and end-stage renal disease is warranted. The current evidence strongly suggests to start with psychological interventions—such as CBT, relaxation techniques, and exercise therapy—when treating depression in this patient population.

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