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Original Research Article

TREATMENT WITH SILDENAFIL CITRATE IN RENAL TRANSPLANT PATIENTS WITH ERECTILE DYSFUNCTION

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Abstract: *Erectile dysfunction (ED) is a prevalent and distressing condition among renal transplant patients, often stemming from multifactorial causes such as medication side effects, psychological factors, and vascular complications associated with end-stage renal disease (ESRD) and transplantation. The basic aim of the study is to find the treatment with sildenafil citrate in renal transplant patients with erectile dysfunction (ED). This prospective observational study was conducted at the Institute of Kidney Disease Peshawar from 2017 to 2023. A total of 240 participants were recruited using convenience sampling methods. All male patients aged 18 years or older who had undergone renal transplantation and reported persistent ED for a duration of at least six months post-transplantation. Patients who use nitrate medications, severe cardiovascular disease, and uncontrolled hypertension were excluded from the study. Data were collected from 240 patients. The mean age of the patients was 52 ± 8.01 years and the mean duration of the transplant was 5.1 ± 3.2 years. Almost 70% of patients were suffering from hypertension, 45% from DM, and 30% from CVD. The mean level of serum creatinine was 1.5 ± 0.3 mg/dl and the mean GFR was 60 ± 10mL/min/1.73m². The assessment at baseline revealed an IIEF erectile function score of 12.5, which significantly improved to 20.2 at the 12-week follow-up, indicating a notable enhancement in erectile function among participants. Moreover, the frequency of successful intercourse also exhibited a positive change, with participants reporting an increase from 1-2 times per month at baseline to 3-4 times per month at the 12-week. It is concluded that sildenafil citrate demonstrates significant efficacy in improving erectile function and sexual satisfaction among renal transplant patients with erectile dysfunction.*

Keywords: Erectile Dysfunction, Renal Transplant, Sildenafil Citrate, End-Stage Renal Disease, Sexual Satisfaction

Introduction

Erectile dysfunction (ED) is a prevalent and distressing condition among renal transplant patients, often stemming from multifactorial causes such as medication side effects, psychological factors, and vascular complications associated with end-stage renal disease (ESRD) and transplantation (Barrou et al., 2003). Sildenafil citrate, a phosphodiesterase type 5 inhibitor, has emerged as a promising therapeutic choice for ED because of its viability, well-being, and simplicity of organization. However, its utility and well-being profile in the particular populace of renal transplant recipients remains somewhat underexplored (Zhang et al., 2005).

Renal transplant patients address an interesting companion characterized by complex clinical narratives, including comorbidities, for example, hypertension, diabetes mellitus, and cardiovascular disease, which might impact both the etiology and management of ED (Payne et al., 2021). Furthermore, considerations concerning potential medication interactions and renal capability require a cautious assessment of pharmacotherapeutic choices for ED in this populace. Erectile dysfunction (ED) in men with ongoing renal disappointment is multifactorial, coming from different natural and mental elements (Perri et al., 2020).

Natural factors include neuroendocrine irregular characteristics, uremia, vascular dysfunction, venous issues, and comorbidities, for example, hypertension, diabetes mellitus, and atherosclerosis. While renal transplantation can here and there mitigate neuroendocrine interruptions, dialysis ordinarily doesn't (Pyrgidis et al., 2021b). Also, mental factors, including misery, are pervasive among renal dialysis patients, further exacerbating ED. Furthermore, the utilization of various meds to oversee comorbidities in renal disappointment patients may likewise add to ED powerlessness (Sadasukhi et al., 2021).

Sildenafil citrate has emerged as a significant advancement in treating erectile dysfunction (ED) in men because of its viability, security, convenience, and negligible secondary effects. This study expects to assess its security and adequacy explicitly in renal transplant patients with ED, alongside surveying its acknowledgment, ideal measurement, and potential adverse responses (Dehghani et al., 2023). Furthermore, the review looks at the medication's effect on the bioavailability of immunosuppressants processed by the cytochrome P450 pathway (cyclosporin), featuring sildenafil's benefits in clinical management by limiting dangers, for example, delayed erection or priapism, decreasing disease dangers, and offering a more regular and unconstrained impact (Laguerre et al., 2021).

The basic aim of the study is to find the treatment with sildenafil citrate in renal transplant patients with erectile dysfunction (ED).

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Methodology

This prospective observational study was conducted at the Institute of Kidney Disease Peshawar from 2017 to 2023. A total of 240 participants were recruited using convenience sampling methods. All male patients aged 18 years or older who had undergone renal transplantation and reported persistent ED for a duration of at least six months post-transplantation.

Patients who use nitrate medications, severe cardiovascular disease, and uncontrolled hypertension were excluded from the study. Baseline demographic and clinical characteristics, including age, duration since renal transplantation, comorbidities, medications, and renal function parameters (e.g., serum creatinine, estimated glomerular filtration rate), were recorded for all participants. Additionally, validated instruments such as the International Index of Erectile Function (IIEF) questionnaire were administered to assess baseline erectile function and sexual health. Participants were prescribed sildenafil citrate according to standard clinical practice guidelines, with dosing adjustments made as clinically indicated based on individual response and tolerability. Follow-up visits were scheduled at regular intervals (e.g., 4 weeks, 8 weeks) to assess treatment response, monitor adverse events, and make any necessary modifications to the treatment regimen. Changes in erectile function scores on the IIEF questionnaire, frequency of successful sexual intercourse, patient-reported satisfaction with treatment, and incidence of adverse events related to sildenafil citrate use. Data were analyzed using SPSS 29.

Results

Data were collected from 240 patients. The mean age of the patients was 52 ± 8.01 years and the mean duration of the transplant was 5.1 ± 3.2 years. Almost 70% of patients were suffering from hypertension, 45% from DM, and 30% from CVD. The mean level of serum creatinine was 1.5 ± 0.3 mg/dl and the mean GFR was 60 ± 10mL/min/1.73m².

Table 01: Demographic data of patients

Characteristic	Mean ± SD / Frequency (%)
Age (years)	52 ± 8.01
Duration since transplant (years)	5.1 ± 3.2
Comorbidities	
- Hypertension	168 (70%)
- Diabetes mellitus	108 (45%)
- Cardiovascular disease	72 (30%)
Renal function parameters	
- Serum creatinine (mg/dL)	1.5 ± 0.3
- Estimated GFR (mL/min/1.73m²)	60 ± 10

The assessment at baseline revealed an IIEF erectile function score of 12.5, which significantly improved to 20.2 at the 12-week follow-up, indicating a notable enhancement in erectile function among participants. Moreover, the frequency of successful intercourse also exhibited a positive change, with participants reporting an increase from 1-2 times per month at baseline to 3-4 times per month at the 12-week.

Table 02: Erectile function score before and after treatment

Assessment	Baseline	12-week Follow-up
IIEF erectile function	12.5	20.2
Frequency of successful intercourse	1-2 times/month	3-4 times/month

The most commonly reported adverse events among participants were headaches, experienced by 10% of individuals, followed by flushing, reported by 8% of participants.

Table 03: Adverse events associated with treatment

Adverse Event	Frequency (%)
Headache	10
Flushing	8
Dyspepsia	5

Discussion

Our findings indicate that sildenafil citrate is associated with significant improvements in erectile function, as evidenced by a substantial increase in the International Index of Erectile Function (IIEF) erectile function domain score from baseline to the 12-week follow-up visit. This improvement was combined with a remarkable increase in the recurrence of effective sex, demonstrating a positive effect on patients' sexual fulfillment and personal satisfaction (Santoro et al., 2023). The observed adequacy of sildenafil citrate in this populace lines up with past examinations exhibiting its viability in men with ED of different etiologies, incorporating those with comorbid conditions, for example, diabetes mellitus and cardiovascular disease (Kim et al., 2021; Rezaee et al., 2020). Critically, our review stretches out these discoveries to the remarkable populace of renal transplant recipients, who might experience ED because of intricate factors connected with their clinical history, immunosuppressive therapy, and renal capability (Jagdish et al., 2021).

Following renal transplantation, roughly 75% of patients experience a recovery in erectile capability, yet up to 10% may encounter weakness repeat with a solitary join. The presentation of sildenafil citrate in the last part of the 1990s altered treatment, offering adequacy, security, and accommodation with negligible adverse impacts (Luo et al., 2020). In renal transplant recipients, sildenafil shows tantamount viability to other ED patients, while alleviating secondary effects related to intracavernosal drugs, like delayed erection or priapism. Aftereffects in renal transplant patients reflect those observed in ED patients without transplantation (Johansen, 2020). Moreover, sildenafil's viability might be improved with shorter spans on dialysis, potentially because of less high-level penile vascular disease

(Viigimaa et al., 2020).

Several treatment options exist for patients with erectile dysfunction (ED), among which sildenafil citrate stands out as the first oral therapy demonstrating efficacy across a broad spectrum of etiologies (Bakr et al., 2021). It effectively addresses ED in patients with various medical conditions, including hypertension, pelvic surgery history,

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diabetes mellitus, and ischemic heart disease (Pyrgidis et al., 2021a). Sildenafil has consistently shown significant improvements in patient's ability to attain and sustain erections compared to a placebo, offering hope to those with ED regardless of underlying health issues (Sangkum et al., 2021).

Conclusion

It is concluded that sildenafil citrate demonstrates significant efficacy in improving erectile function and sexual satisfaction among renal transplant patients with erectile dysfunction.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department concerned.
Consent for publication
Approved
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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

KHALIL UR REHMAN (Specialist Registrar)
Coordination of collaborative efforts.
The conception of Study, Final approval of the manuscript
FAZL E MANAN (Specialist Registrar)
Study Design, Review of Literature
Conception of Study, Development of Research Methodology Design, Study Design,, Review of manuscript, final approval of manuscript
IKRAM ULLAH (Associate professor)
Manuscript revisions, critical input.
Data acquisition, and analysis.
NASRUM MINALLAH (Associate professor)
Manuscript drafting.
Data entry and Data analysis, drafting article
Data acquisition, and analysis.

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