Therapeutic Role and Safety Profile of Corticosteroids in Renal Disorders

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Abstract

Corticosteroids are extensively used in the management of several renal disorders due to their potent anti-inflammatory and immunosuppressive properties [(1)]. They remain a cornerstone of therapy in conditions such as glomerulonephritis, nephrotic syndrome, lupus nephritis, acute interstitial nephritis, and renal transplantation [(7)]. Although their clinical benefits are well established, long-term corticosteroid therapy is associated with a wide range of adverse effects, particularly in patients with chronic kidney disease [(3)]. This review summarizes evidence published after 2015 regarding the therapeutic role and safety profile of corticosteroids in renal disorders.

Keywords

Corticosteroids; Renal Disorders; Glomerulonephritis; Nephrotic Syndrome; Safety Profile

Introduction

Corticosteroids have been widely used in nephrology for decades because of their ability to suppress inflammatory pathways and modulate immune responses [(7)]. They are commonly prescribed in glomerular diseases, nephrotic syndrome, lupus nephritis, acute interstitial nephritis, and in immunosuppressive regimens following renal transplantation [(8)]. Despite their therapeutic benefits, corticosteroids are associated with several adverse effects, particularly when used for prolonged durations [(3)].

Objectives

1. To evaluate therapeutic effectiveness of corticosteroids in renal disorders.
2. To assess safety profile in renal patients.
3. To summarize recent clinical evidence.

Methodology

A literature search was conducted using PubMed, Google Scholar, and Scopus for studies published between 2015 and 2025. Search terms included “corticosteroids,” “renal disorders,” and “glomerulonephritis.” Randomized

controlled trials, meta-analyses, and cohort studies were included.

Discussion

Steroids remain effective in immune-mediated renal disorders such as IgA nephropathy and lupus nephritis [6][7]. However, adverse effects such as infections, hyperglycemia, and osteoporosis limit long-term use [3][8]. Recent evidence supports low-dose and combination regimens to reduce toxicity [4].

Conclusion

Corticosteroids remain essential in selected renal disorders but require individualized dosing and careful monitoring [7]. Steroid-sparing strategies are promising for safer long- term management [4]

References

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Review of Literature Table

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Author & year	Study design	Population	Interventions	Key Outcomes	Conclusion
Jääskeläinen et al., 2023	Systematic review & meta-analysis	Children with acute pyelonephritis	Corticosteroids + antibiotics	Reduced Renal scarring	Adjunctive steroids beneficial
Arivazhagan et al., 2022	Randomize d controlled trial	Infection-related GN patients	Prednisolone vs placebo	No renal recovery benefit; ↑ adverse events	Steroids not beneficial in IRGN
Del Vecchio et al., 2024	Retrospect i ve cohort	IgA nephropath y patients	Corticosteroid therapy	↓ Proteinuri a; ↑ infections	Efficacy with safety concerns
Zhang et al., 2024	Meta-analysis	Progressive IgA nephropath y	Low-dose steroids + leflunomide	Improved outcomes; better safety	Combinatio n preferred
Gkiourtzis et al., 2023	Meta-analysis	Pediatric UTIs	Corticosteroids + antibiotics	Reduced renal scarring	Steroids beneficial
Radhakrish n an et al.,2019	Observatio n al study	Adult minimal Change disease	Prednisone	High remission;rel apses	First-line therapy
Praga et al., 2015	Review article	FSGS patients	Steroid therapy	Variable response; toxicity	Careful selection needed

List of Abbreviations

CKD – Chronic Kidney Disease GN – Glomerulonephritis

IgAN – IgA Nephropathy

IRGN – Infection-Related Glomerulonephritis

RCT – Randomized Controlled Trial

KDIGO – Kidney Disease: Improving Global Outcomes

FSGS – Focal Segmental Glomerulosclerosis

UTI – Urinary Tract Infection

SAE – Serious Adverse Event

MMF – Mycophenolate Mofetil