*Article Type [Original Article]*

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**Abstract:**

**Background:** 1-2 sentences. State the clinical problem and study rationale like: Disease burden/epidemiology, Specific knowledge gap, Study objective. Example: “Diabetic kidney disease (DKD) affects 30-40% of diabetics, but early biomarkers remain limited. We evaluated urinary [TIMP-2]-[IGFBP7] as a predictor of rapid DKD progression.".

**Methods:** 2-3 sentences. Summarize study design and key procedures. Study design (RCT, cohort, etc.). Population/sample size (e.g., "n=450 CKD patients"). Primary methods (assays, interventions, follow-up). Statistical approach. Example: "In this multicenter prospective study, 600 type 2 diabetics with normoalbuminuria were followed for 3 years. Urinary [TIMP-2]-[IGFBP7] was measured quarterly by ELISA. Cox regression analyzed progression to macroalbuminuria (eGFR decline >30%).".

**Results:** 2-3 sentences. Report key quantitative findings. Primary outcome data (with statistical significance). Most significant secondary outcomes. Numerical results (percentages, hazard ratios, p-values). Example: "Patients with elevated [TIMP-2]-[IGFBP7] (>0.3 ng/mL) had 3.2-fold higher progression risk (HR 3.2, 95% CI 1.8-5.6, p<0.001). The marker predicted progression 12 months earlier than albuminuria (AUC 0.82 vs 0.64, p=0.01).".

**Conclusion:** 1 sentence. State the take-home message. Direct answer to the research question. Clinical/research implications. Avoid overgeneralization. Example: "Urinary [TIMP-2]-[IGFBP7] is a promising early predictor of DKD progression, potentially enabling pre-albuminuria risk stratification.".

**Keywords:** Biomarkers; Diabetes; CKD; Risk Progression; Clinical Trial

Introduction

A strong introduction for a nephrology research article should begin by establishing the broader clinical or scientific context of the study (1). Start with a compelling statement about the significance of the topic, supported by relevant epidemiological data or current challenges in the field. For example, you might highlight the growing burden of chronic kidney disease (CKD) or the limitations of existing diagnostic tools for acute kidney injury (AKI) (2). This sets the stage for the reader by emphasizing why the research matters. Next, narrow the focus to the specific problem or knowledge gap your study addresses (3). Cite key literature to provide background, but critically identify unresolved questions or inconsistencies in prior research—perhaps a lack of reliable biomarkers for early CKD progression or conflicting evidence about a particular treatment’s

efficacy. This transition justifies the need for your work (4,5).

Clearly state your research question or hypothesis in a direct and measurable way, avoiding vague language. For instance, specify whether you’re investigating a novel biomarker, evaluating a therapeutic intervention, or exploring a mechanistic pathway. If space allows, briefly mention your study design (e.g., a randomized controlled trial, prospective cohort, or meta-analysis) to give readers a snapshot of your methodology. Conclude by underscoring the potential impact of your findings (6).

Explain how your results could influence clinical practice, patient outcomes, or future research—whether by enabling earlier diagnosis, personalizing treatment, or clarifying a debated mechanism. Keep the introduction concise (typically 250–450 words) and avoid overloading it with citations; prioritize the most recent or authoritative references (7). Tailor the tone to your target journal, balancing accessibility for clinicians with technical rigor for researchers. By seamlessly weaving these elements together—context, gap, objective, and significance—you’ll craft an introduction that persuasively frames your study’s contribution to nephrology.

Throughout, maintain concise paragraphs (typically 3-5 sentences each) with judicious use of citations (3-5 total), prioritizing recent, high-impact references. The writing should employ present tense for established facts ("CKD is associated with..."), past tense for previous research ("Zhang et al. reported..."), and past tense for your own methods ("We analyzed..."). This natural progression from general background to specific contribution creates a compelling rationale for your study while demonstrating its relevance to advancing nephrology practice (8).

The most effective introductions avoid common pitfalls like excessive jargon, undefined abbreviations, or inclusion of results - instead, they tell a clear story that moves from "what we know" to "what we don't know" to "how our study helps." For clinical trials, emphasize randomization and blinding; for mechanistic studies, briefly state the biological hypothesis; for pediatric research, highlight age-specific considerations (9). The tone should balance accessibility for clinicians with sufficient technical depth for researchers, always tailored to your target journal's audience and style requirements. By weaving these elements together organically - context, gap, objective, and significance - you create an introduction that both informs and persuades, setting the stage for your original contribution to nephrology science (10)

Methods

**Study Design:** Clearly state the type of study (prospective/retrospective cohort, randomized controlled trial, case-control, cross-sectional, etc.).

Mention approval by an ethics committee/institutional review board (include approval number). Specify if the study followed guidelines (e.g., STROBE for observational studies, CONSORT for trials).

Example: "This multicenter, double-blind, randomized placebo-controlled trial (ClinicalTrials.gov ID: NCTXXXXXX) was conducted across 12 tertiary nephrology centers from 2020–2023. The study protocol was approved by the Institutional Review Board of XYZ University (IRB No. 1234) and adhered to CONSORT guidelines."

**Participant Selection**: Define inclusion/exclusion criteria (demographics, clinical conditions, lab thresholds). Specify recruitment methods (consecutive sampling, random selection). Report sample size calculation (power analysis, effect size, alpha/beta values).

Example: "We enrolled 450 adults (age ≥18 years) with biopsy-proven IgA nephropathy and proteinuria >1 g/day. Exclusion criteria included eGFR <30 mL/min/1.73m² or prior immunosuppressive therapy. A power analysis (α=0.05, β=0.20) determined 400 participants were needed to detect a 30% reduction in proteinuria."

**Data Collection & Variables**: Primary/secondary outcomes: Define clearly (e.g., "Primary outcome: 40% eGFR decline over 2 years"). Exposure variables: For cohort studies (e.g., "serum phosphate levels"). Confounders: List adjusted variables (e.g., age, hypertension, diabetes). Follow-up duration and intervals (e.g., "biannual visits for 3 years").

Example: "Primary outcome was progression to composite kidney failure (dialysis, transplantation, or eGFR <15 mL/min). Secondary outcomes included annual eGFR slope and cardiovascular events. Serum FGF-23 was measured at baseline and quarterly using ELISA (Kit XYZ, Inc.)."

**Laboratory/Clinical Methods**: Detail assay techniques (e.g., "Urinary NGAL measured by chemiluminescence immunoassay"). Specify equipment (manufacturer, model). Describe procedures (e.g., "Kidney biopsies were scored by two pathologists blinded to clinical data using the Oxford Classification").

Example: "eGFR was calculated using CKD-EPI 2021 equations. Urinary albumin-creatinine ratio (UACR) was measured from first-morning voids via immunoturbidimetry (Roche Cobas® 8000)."

**Statistical Analysis**: State software used (e.g., "SPSS v26.0"). Describe tests (t-tests, ANOVA, Cox regression). Address missing data (e.g., "Multiple imputation for <5% missing values"). Clarify adjustments (e.g., "Multivariable models adjusted for age, sex, and baseline eGFR").

Example: "Continuous variables were compared using Mann-Whitney U tests. Kaplan-Meier curves and Cox proportional hazards models assessed survival outcomes. Two-sided p<0.05 was significant."

**Ethical Considerations**: Confirm informed consent (written/verbal). For animal studies: Follow ARRIVE guidelines and mention care standards.

Example: "All participants provided written informed consent. Animal studies adhered to NIH guidelines for humane endpoint criteria."

Results

The Results section presents your study’s key findings in a clear, objective, and structured manner. It should align with the methods described and directly address the research question without interpretation.

**Participant Flow & Baseline Characteristics**: Start by summarizing: Recruitment & attrition (e.g., number of participants enrolled, excluded, and analyzed). Baseline demographics (age, sex, clinical parameters) in the overall cohort and subgroups.

Example: "Of 850 screened CKD patients, 600 met inclusion criteria and were enrolled. After excluding 42 patients lost to follow-up, 558 (93%) were analyzed. Mean age was 58 ± 12 years; 55% were male. Baseline eGFR was 45 ± 18 mL/min/1.73m², and median UACR was 320 mg/g (IQR 120–600)."

Use a flowchart (for trials) or Table 1 for baseline data.

Your figure

Figure 1. Use a flowchart or algorithm or diagram or any figure if applicable

**Primary Outcomes**: Report the main results that answer your primary research question: Include effect sizes (relative risk, hazard ratios, mean differences). Provide 95% confidence intervals (CIs) and p-values. State whether results were statistically significant (threshold: p < 0.05).

Example (Clinical Trial): "The intensive BP group (target <120 mmHg) had a 32% lower risk of CKD progression (HR 0.68, 95% CI 0.52–0.89, p = 0.006) compared to standard treatment (<140 mmHg)."

Example (Biomarker Study): "Urinary NGAL levels >150 ng/mL predicted AKI with 88% sensitivity (95% CI 82–93) and 76% specificity (95% CI 70–82), AUC 0.85 (p < 0.001)."

The biomarker predicted dialysis requirement with AUC 0.89 (95% CI 0.84–0.94). Subgroup analysis confirmed consistent performance across sepsis and non-sepsis AKI (interaction p = 0.34). Adverse events were similar between groups (p > 0.05)."

Table 1. Title of the table

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| --- | --- | --- | --- | --- |
| Parameters | Column 1 | Column 2 | Column 3 | Column 4 |
| Variable 1 |  |  |  |  |
| Variable 2 |  |  |  |  |
| Variable 3 |  |  |  |  |
| Variable 4 |  |  |  |  |

**Secondary Outcomes**: Highlight additional key findings that support or contextualize primary results: Use subheadings if multiple outcomes were assessed (e.g., "Cardiovascular Outcomes," "Safety Events"). Report negative results transparently (e.g., \*"No difference in all-cause mortality was observed (p = 0.21)."\*).

Example: "Secondary analysis showed a 1.5-fold higher risk of hyperkalemia (RR 1.52, 95% CI 1.10–2.09) in the spironolactone group versus placebo."

**Subgroup & Sensitivity Analyses**: If pre-specified, describe: Subgroup differences (e.g., by age, diabetes status, CKD stage). Robustness checks (e.g., alternative statistical models, handling missing data).

Example: "The treatment effect was stronger in diabetic patients (HR 0.59, 95% CI 0.42–0.83) than non-diabetics (HR 0.91, 95% CI 0.70–1.18; interaction p = 0.03)."

Discussion

The Discussion section interprets your findings, contextualizes them within existing literature, and highlights their clinical and scientific implications. It should be structured logically, moving from specific results to broader impact. Below is a step-by-step guide with key elements and examples (11).

**Summarize Key Findings** (1–2 paragraphs): Start by briefly restating your study’s main results without repeating data. Use clear, concise statements that answer your research question. Highlight novel or unexpected findings (12,13).

Example: "In this randomized trial of 600 CKD patients, intensive blood pressure control (SBP <120 mmHg) significantly reduced the risk of kidney failure by 32% compared to standard treatment (SBP <140 mmHg). Notably, this benefit was most pronounced in patients with baseline proteinuria >1 g/day" (14).

**Compare with Prior Literature** (2–3 paragraphs): Place your results in the context of existing evidence: Agreement: Cite studies supporting your findings. Disagreement: Explain contradictions (e.g., differences in population, methods). Novelty: Emphasize how your study advances the field (15).

Example: "Our results align with SPRINT (2015), which demonstrated renal protection with intensive BP lowering in non-diabetic patients. However, they contrast with ACCORD (2010), where stricter control did not reduce CKD progression in diabetics. This discrepancy may stem from our inclusion of both diabetic and non-diabetic CKD patients, suggesting BP targets should be individualized."

**Interpret Mechanisms** (1 paragraph, if applicable): For basic science or mechanistic studies, explain biological pathways behind your findings (16).

Example (Biomarker Study): "The strong association between urinary [TIMP-2]•[IGFBP7] and AKI progression may reflect tubular cell cycle arrest, a key pathway in subclinical kidney injury. This aligns with animal models showing TIMP-2 upregulation during ischemic stress."

**Limitations** (1 paragraph): Acknowledge study weaknesses transparently to strengthen credibility: Methodological issues (e.g., single-center design, short follow-up). Confounding factors (e.g., unmeasured variables). Generalizability (e.g., exclusion of elderly patients) (17).

Example: "Our study has limitations: First, the open-label design may have introduced bias. Second, we lacked data on dietary potassium, which may influence outcomes. Finally, our cohort was predominantly Caucasian, limiting generalizability to other ethnicities."

**Clinical/Research Implications** (1–2 paragraphs): Explain how your findings impact practice or future research: For clinicians: Should guidelines change? For researchers: What gaps remain?

Example (Clinical Implications): "These findings support revising BP targets to <120 mmHg in proteinuric CKD patients, though close monitoring for hypotension is warranted."

**Conclusion**

Conclusion (1–2 sentences): End with a strong take-home message: Avoid vague statements ("More research is needed"). Be specific and actionable.

Example: "Intensive BP control slows CKD progression in proteinuric patients, supporting personalized treatment strategies. Urinary [TIMP-2]-[IGFBP7]. may enable early AKI risk stratification, but external validation is required.".

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