**METHODOLOGY**

This retrospective study analysed native kidney biopsies performed in adult patients (age>18 years) at All India Institute of Medical Sciences (AIIMS)- Raipur (between June 2019 to June 2022) and Ramakrishna Care Hospital (RKC) (between June 2017 to June 2022) in the central Indian city of Raipur, Chhattisgarh. AIIMS-Raipur is a public sector tertiary care teaching institute with a functional department of Nephrology since March 2019. RKC-Raipur is a private sector tertiary care institute. Both hospitals receive patients predominantly from Chhattisgarh and the contiguous states of Orissa, Madhya Pradesh, Maharashtra, and Jharkhand.

All kidney biopsies were performed by trained nephrologists percutaneously under real time ultrasound guidance using a 16 G automatic trucut biopsy gun. The biopsy specimens were processed for light microscopy (LM) and immunofluorescence microscopy (IF). Electron microscopy was not available freely and was performed only in selected cases, hence was not included in the analysis. Light microscopic examination was done using Periodic Acid Schiff and Eosin and Haematoxylin stain, Masson's Trichrome and Jones silver stain and other special stains were used in selected cases. Immunofluorescence was done by direct method using fluorescein isothiocyanate conjugated antibodies against IgG, IgM, IGA, c3, c1q, Lambda and Kappa light chains. All biopsies were processed in the same laboratory. The renal biopsy was considered adequate if it contained 10 glomeruli for light microscopy and at least one glomeruli for immunofluorescence and electron microscopy.

The clinical and demographic data and Laboratory investigations of patients were obtained from patients medical records. Patients were classified with following clinical syndromes of presentation as an indication for biopsy – Acute kidney injury, chronic kidney disease, nephrotic syndrome, Nephritic syndrome, and Rapidly progressive renal Failure (RPRF). Acute kidney injury was defined according to KDIGO 2012 AKI guideline. Chronic kidney disease was defined according to KDIGO 2012CKD guideline. Nephrotic syndrome was defined as proteinuria >3.5gm/1.73 m2/24 hours, dyslipidemia, hypoalbuminemia (<3 mg/dl), and presence of edema. Nephritic syndrome was defined as presence of hypertension, proteinuria, microscopic/macroscopic haematuria with or without renal dysfunction. Rapidly progressive renal failure (RPRF) was defined as a doubling of serum creatinine or a 50% decrease in glomerular filtration rate (GFR) over a few weeks.

Data were recorded in Excel spreadsheet and were analysed with the help of IBM SPSS (statistical package for social sciences) version 26. Descriptive statistics were used, and results were expressed as mean and standard deviation for quantitative data and frequencies and percentages for categorical data. The study was approved by Institute Ethic Committee-AIIMS- Raipur (AIIMSRPR/IEC/2021/711) dated 16.02.2021

**Table 3 –Comparison of our study with studies from other regions in India**

| Region | Central India | East India | West India | North India | | South India | |
|---|---|---|---|---|---|---|---|
| Authors | Present study | Golay et al(S2) | Beniwal et al(S1) | Agarwal et al(S4) | Rathi et al(2) | Narasimhan et al(5) | Das et al(6) |
| Place | Raipur, CG | Kolkata | Jaipur | Delhi | Chandigarh | Vellore | Hyderabad |
| Period | 2017-2022 | 2010-2012 | 2008-2013 | 1987-98 | 2002-2007 | 1986-2002 | 1990-2008 |
| N | 800 | 666 | 622 | 14796 | 324 | 5415 | 1849 |
| Mean Age | 33.8±16.09 | 28±14.6 | 30.3±7.1 | 38.6±15.5 | 31.5±11 | | 32.2±18.4 |
| Nephrotic syndrome (%) | 49.8% | - | 66.7% | 15.03% | 100% | 65.7% | 49% |
| Nephritic syndrome (%) | 35% | - | 11.9% | 4.6% | - | 15.7% | 9% |
| RPRF | 1.6% | - | 8% | - | - | 3.4% | 12% |
| AKI | 8.1% | - | 4.7% | 12.8% | - | 1.8% | 6.5% |
| CKD | 5.3% | - | 4% | 47.8% | - | 10.2% | 13.6% |
| PGD | 57.8% | 79.1% | 79.4% | 58.5% | 89% | 71% | 69.1% |
| SGD | 31.8% | 20.8% | 14.5% | 41.5% | 11% | 29% | 18.2% |
| MCD | 13.7% | 20.1% | 21.1% | 38% | 14.8% | 10.8% | 15.1% |
| FSGS | 12.2% | 18.1% | 10.5% | 20% | 30.6% | 16.8% | 10.5% |
| MGN | 15.5% | 12% | 15% | 20% | 24.4% | 9.5% | 7% |
| IGAN | 13.2% | 8.1% | 7.4% | 11.2% | 1.8% | 8.4% | 4.4% |
| MPGN | 1.2% | 5.25% | 9.6% | 11.6% | 17.9% | 2.9% | 3.9% |
| MsPGN | - | 0.6% | 6.4% | - | - | 7.3% | 5.2% |
| CrGN | 15% | 7.5% | 2.6% | - | - | - | 4.5% |
| DPGN | 5.1% | - | | - | 2.8% | - | 4.7% |
| LN | 17.3% | 15.3% | 7.6% | 3.4% | 7.7% | 6.9% | 14.6% |
| DN | 5% | 0.15% | 0.6% | 22% | 0.3% | 2.8% | 1.2% |

**[**FSGS- Focal segmental glomerulosclerosis, IC DPGN – Immune complex diffuse proliferative glomerulonephritis, IGAN – IgA Nephropathy, LN – Lupus Nephritis, MCD- Minimal change disease, MGN- Membranous Nephropathy, MPGN – Membranoproliferative glomerulonephritis, PGNMID- proliferative glomerulonephritis with monoclonal immunoglobulin deposition, PI CGN – pauci immune crescentic glomerulonephritis, RCN – Renal cortical Necrosis, TMA- Thrombotic microangiopathy, ATIN- Acute tubulointerstitial nephritis, CGN- chronic glomerulonephritis, CTID- chronic tubulointerstitial disease, DN – Diabetic Nephropathy]

# Supplementary References


S1. Beniwal P, Pursnani L, Sharma S, Garsa RK, Mathur M, Dharmendra P, et al. A clinicopathologic study of glomerular disease: A single-center, five-year retrospective study from Northwest India. Saudi J Kidney Dis Transpl. 2016;27(5):997–1005.

S2. Golay V, Trivedi M, Kurien AA, Sarkar D, Roychowdhary A, Pandey R. Spectrum of nephrotic syndrome in adults: Clinicopathological study from a single center in India. Ren Fail. 2013;35(4):487–91.

S3. Jamil M, Bhattacharya PK, Raphael V, Khonglah Y, Lyngdoh M, Roy A. Spectrum of glomerular diseases in adults: A study from north eastern India. J Assoc Physicians India. 2018;66(August):36–9.

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