

VOLUME 42, NUMBER 5
May 2025

ISSN 0189 - 160X

WAJM

WEST AFRICAN JOURNAL OF MEDICINE

ORIGINALITY AND EXCELLENCE IN MEDICINE AND SURGERY



OFFICIAL PUBLICATION OF
THE WEST AFRICAN COLLEGE OF PHYSICIANS *AND*
WEST AFRICAN COLLEGE OF SURGEONS



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Correlates of Histologic Activity and Chronicity Indices in Adult Patients with Glomerulonephritides: A Nigerian Picture

Corrélat de l'Activité Histologique et des Indices de Chronicité chez les Patients Adultes atteints de Glomérulonéphrites : Une Perspective Nigériane

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ABSTRACT

BACKGROUND: Globally, glomerulonephritis with its diverse clinical manifestations and histologic attributes still maintains a dominant position among the myriads of aetiological culprits associated with the pathophysiologic course of chronic kidney disease. This study distinctively correlated the graded and scored histologic features observed in the glomerulus and tubulo-interstitium with clinical and biochemical features.

METHODS: A hospital-based cross-sectional study of 70 adult patients who presented consecutively with features of glomerulonephritis was carried out. Renal biopsies were undertaken after renal function assessment. Light microscopy and immunoperoxidase staining utilising IgA, IgM, IgG and C₃ antibodies were carried out on the biopsied renal tissues. The degree of glomerular, tubular, interstitial and vascular affection were graded and scored. Total activity and chronicity indices were collated and their association/correlation with clinical parameters assessed.

RESULTS: Male gender predominated (67.2%) with an overall mean age of 28.4 ± 10.3 years. Statistically significant correlations were found between interstitial oedema with serum creatinine ($r=0.35$, $p=0.003$) and GFR ($r=-0.38$, $p=0.004$); interstitial infiltrate with serum creatinine ($r=0.52$, $p<0.0002$) and GFR ($r=-0.70$, $p=0.002$); total activity index with serum creatinine ($r=0.60$, $p=0.0001$) and GFR ($r=-0.48$, $p=0.004$). Statistically significant correlations were also seen between total chronicity indices with serum creatinine ($r=0.62$, $p=0.001$) and GFR ($r=-0.58$, $p<0.001$).

CONCLUSION: Both activity and chronicity indices significantly influenced renal function. The higher they are, the lower the GFR and vice versa. These further buttress the need for aggressive management protocol for GN patients with higher indices to slow down renal function decline. **WAJM 2025; 42 (5): 339-345**

KEYWORDS: Glomerulonephritides, Renal biopsy, Immunoperoxidase staining, Histology scoring and grading.

RÉSUMÉ

CONTEXTE: À l'échelle mondiale, la glomérulonéphrite, avec ses manifestations cliniques variées et ses caractéristiques histologiques, demeure un acteur majeur parmi les nombreuses causes étiologiques impliquées dans la physiopathologie de la maladie rénale chronique. Cette étude a corrélé de manière spécifique les caractéristiques histologiques notées et graduées dans le glomérule et le tubulo-interstitium avec les paramètres cliniques et biochimiques.

MÉTHODES: Il s'agit d'une étude transversale hospitalière menée auprès de 70 patients adultes présentant consécutivement des signes de glomérulonéphrite. Des biopsies rénales ont été réalisées après évaluation de la fonction rénale. La microscopie optique et la coloration immunoperoxydase utilisant les anticorps IgA, IgM, IgG et C₃ ont été appliquées aux tissus rénaux biopsiés. Le degré d'atteinte glomérulaire, tubulaire, interstitielle et vasculaire a été gradé et noté. Les indices totaux d'activité et de chronicité ont été compilés et leur association/corrélation avec les paramètres cliniques évaluée.

RÉSULTATS: La prédominance masculine était notable (67,2 %) avec un âge moyen global de 28,4 ± 10,3 ans. Des corrélations statistiquement significatives ont été observées entre l'œdème interstitiel et la créatinine sérique ($r=0,35$, $p=0,003$) ainsi que le DFG ($r=-0,38$, $p=0,004$); l'infiltrat interstitiel avec la créatinine sérique ($r=0,52$, $p<0,0002$) et le DFG ($r=-0,70$, $p=0,002$); l'indice total d'activité avec la créatinine sérique ($r=0,60$, $p=0,0001$) et le DFG ($r=-0,48$, $p=0,004$). Des corrélations significatives ont également été relevées entre les indices totaux de chronicité et la créatinine sérique ($r=0,62$, $p=0,001$) ainsi que le DFG ($r=-0,58$, $p<0,001$).

CONCLUSION: Les indices d'activité et de chronicité influencent significativement la fonction rénale. Plus ces indices sont élevés, plus le DFG est bas, et inversement. Ces résultats renforcent la nécessité d'un protocole de prise en charge agressive pour les patients atteints de GN présentant des indices élevés, afin de ralentir le déclin de la fonction rénale.

WAJM 2025; 42 (5): 339-345

MOTS-CLÉS: Glomérulonéphrites, Biopsie rénale, Coloration immunoperoxydase, Notation et gradation histologique.

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Abbreviations: CKD: Chronic kidney disease; GN: Glomerulonephritis; GFR: Glomerular filtration rate; IgA: Immunoglobulin A; IgM: Immunoglobulin M; IgG: Immunoglobulin G; C₃: Complement fraction; LDL?: PGN?: MN?