

## NEPHROLOGY - II

### POSTINFECTIOUS GLOMERULONEPHRITIS AND BEYOND

**\*Jyoti Singhal**  
**\*\*Jyoti Sharma**

**Abstract:** *Post-infectious glomerulonephritis is the commonest form of glomerulonephritis in developing countries, predominantly affecting school going children. The prototype, post-streptococcal glomerulonephritis typically presents with acute onset of mild edema, hematuria and hypertension. The hallmark of post-infectious glomerulonephritis is activation of the alternative complement pathway, resulting in decreased serum C3 levels. Management is primarily supportive, focusing on controlling edema and hypertension and correcting associated electrolyte imbalances. A small proportion of children have progressive oliguria, kidney dysfunction, refractory hyperkalemia and / or pulmonary edema unresponsive to diuretics and dialysis may be required in these severe cases, Prognosis is generally excellent; most cases resolve completely and only a small minority progress to chronic kidney disease.*

**Keywords:** *Acute nephritic syndrome, Hypertension, Infection related glomerulonephritis, Hematuria.*

#### Points to Remember

- *Post infectious glomerulonephritis should be differentiated from infection associated glomerulonephritis, as the management is only supportive in the PIGN.*
- *An atypical presentation of suspected PIGN should raise the suspicion for an alternative diagnosis.*
- *Alternative complement pathway activation leading to depressed C3 levels is the hallmark of PIGN, and titres of C3 should be followed up until recovery to normal levels 3-4 months after the episode.*
- *Fluid and sodium restriction along with loop diuretics and close monitoring of intake - output form the cornerstone in the management of PIGN*
- *The overall outcome and prognosis of typical cases of PIGN is excellent.*

#### References

1. Bonner, Ryan W, Moreno V, Jain K. Infection-Associated Glomerulonephritis. *Advances in Kidney Disease and Health*, 31(3):246-254.
2. Nadasdy T, Hebert LA. Infection-Related Glomerulonephritis: Understanding Mechanisms. *Semin Nephrol*. 2011; 31(4):369-75.
3. Yoshizawa N, Yamakami K, Fujino M, Oda T, Tamura K, Matsumoto K, et al. Nephritis-associated plasmin receptor and acute poststreptococcal glomerulonephritis: characterization of the antigen and associated immune response. *J Am Soc Nephrol*. 2004; 15(7):1785-93.
4. Cu GA, Mezzano S, Bannan JD, Zabriskie JB. Immunohistochemical and serological evidence for the role of streptococcal proteinase in acute post-streptococcal glomerulonephritis. *Kidney Int*. 1998; 54(3):819-826.
5. Sethi S, Fervenza FC, Zhang Y, Zand L, Meyer NC, Borsa N, et al. Atypical postinfectious glomerulonephritis is associated with abnormalities in the alternative pathway of complement. *Kidney Int*. 2013; 83(2):293-9.
6. Sorger K, Gessler M, Hübner FK, Köhler H, Olbing H, Schulz W, et al. Follow-up studies of three subtypes of

---

\* Consultant Pediatric Nephrologist  
email: jyosinghal@gmail.com

\*\* Senior Consultant Pediatric Nephrologist,  
King Edward Memorial Hospital, Pune.

- acute postinfectious glomerulonephritis ascertained by renal biopsy. *Clin Nephrol.* 1987;27(3):111–24.
7. Sanjad S, Tolaymat A, Whitworth J, Levin S. Acute glomerulonephritis in children: a review of 153 cases. *South Med J.* 1977 ; 70(10):1202-6.
  8. Lewy JE, Salinas-Madrigal L, Herdson PB, Pirani CL, Metcoff J. Clinico-pathologic correlations in acute poststreptococcal glomerulonephritis. A correlation between renal functions, morphologic damage and clinical course of 46 children with acute poststreptococcal glomerulonephritis. *Medicine (Baltimore).* 1971; 50(6): 453-501.
  9. Orlando C, Milani GP, Simonetti GD, Goeggel Simonetti B, Lava SAG, Wytenbach R, et al. Posterior reversible leukoencephalopathy syndrome associated with acute postinfectious glomerulonephritis: systematic review. *Pediatr Nephrol.* 2022; 37(4):833-41.
  10. Sagel I, Treser G, Ty A, Yoshizawa N, Kleinberger H, Yuceoglu AM, et al. Occurrence and nature of glomerular lesions after group A streptococci infections in children. *Ann Intern Med.* 1973; 79(4):492-9.
  11. Lewis EJ, Carpenter CB, Schur PH. Serum complement component levels in human glomerulonephritis. *Ann Intern Med.* 1971; 75(4):555-60.
  12. Johnston F, Carapetis J, Patel MS, Wallace T, Spillane P. Evaluating the use of penicillin to control outbreaks of acute poststreptococcal glomerulonephritis. *Pediatr Infect Dis J.* 1999; 18(4):327-32.
  13. Tasic V. Postinfectious glomerulonephritis. In: Geary D, Schaefer F, editors. *Comprehensive pediatric nephrology.* 1st ed. Philadelphia, (PA): Mosby Elsevier; 2008. pp. 309-317.
  14. Roy S, Murphy WM, Arant BS. Poststreptococcal crescentic glomerulonephritis in children: comparison of quintuple therapy versus supportive care. *J Pediatr.* 1981; 98(3):403-10.
  15. Roy S, Wall HP, Etteldorf JN. Second attacks of acute glomerulonephritis. *J Pediatr.* 1969; 75(5): 758-67.
  16. Rodriguez-Iturbe B, Musser JM. The current state of poststreptococcal glomerulonephritis. *J Am Soc Nephrol JASN.* 2008; 19(10):1855-64.