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LONG-TERM PROGNOSIS OF POSTSTREPTOCOCCAL ACUTE GLOMERULONEPHRITIS*

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The long-term prognosis of poststreptococcal acute glomerulonephritis (PSAGN) has been subject to controversy[1-3]. Some authors report an excellent prognosis without evidence of chronicity while others report progressive renal disease with variable incidence following PSAGN. Some of these discrepancies may be due to: differences in patient material under study (children versus adults, sporadic versus epidemic), severity of the acute episode, diagnostic procedures used (pathological versus clinical), and frequency and length of the follow-up period. Additionally, subclinical cases and cases of questionable diagnosis are not very rare and therefore also contribute to the mistakes made in determining the prognosis of PSAGN.

PSAGN is a disease frequently encountered in Turkey. The present study aims at determining the long-term prognosis of PSAGN patients. The subjects of our study, diagnosed as having PSAGN, were treated in the Pediatric Nephrology Department of Istanbul University Faculty of Medicine during the years 1973-1983 and were investigated with respect to a long-term prognosis.

Material and Methods

Five-hundred and eighty-eight PSAGN patients who had been treated and followed up in the Pediatric Nephrology Department of Istanbul University Faculty of Medicine between 1973-1983 were recalled for a follow-up study between March-April, 1988. Only the patients diagnosed by exact criteria at the beginning of the disease were allowed to participate in the study. Patients diagnosed elsewhere, those with insufficient serological tests, or those seen after the acute phase were not included. In our practice, PSAGN patients are either hospitalized

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or treated as outpatients, being seen in the acute phase as frequently as the patient's condition requires. During the first six-month period patients are followed up frequently, thereafter they are seen at the end of the first year and then followed up annually for a five-year period. Follow-up after the five-year period may continue if the patient so desires. All patients included in this study were followed up for at least five years. Those responding to the follow-up calls were given thorough physical examinations. Blood pressure, serum creatinine, blood urea and β_1 C globulin levels were measured and a complete urinalysis was done.

Results

Fifty-nine patients responded by coming in for a follow-up after receiving letters but 68 letters did not reach the patients due to a change in address. There were no responses from the remaining 461 patients. However, we believe that some of them were not reached due to a change in address.

The mean age of the patients was 8.2 years (range 3-15 years) at the time of the acute episode and 15.6 years (range 8-26 years) in 1988. The follow-up period was 5-14 years (Fig. 1). During the follow-ups between March-April, 1988, all the patients had normal physical findings, including blood pressure, and normal urinalysis. Serum creatinine, blood urea and β_1 C globulin levels were within normal limits (Table I). Some of the patients had reached adulthood and two of them were pregnant at the time of the follow-up.

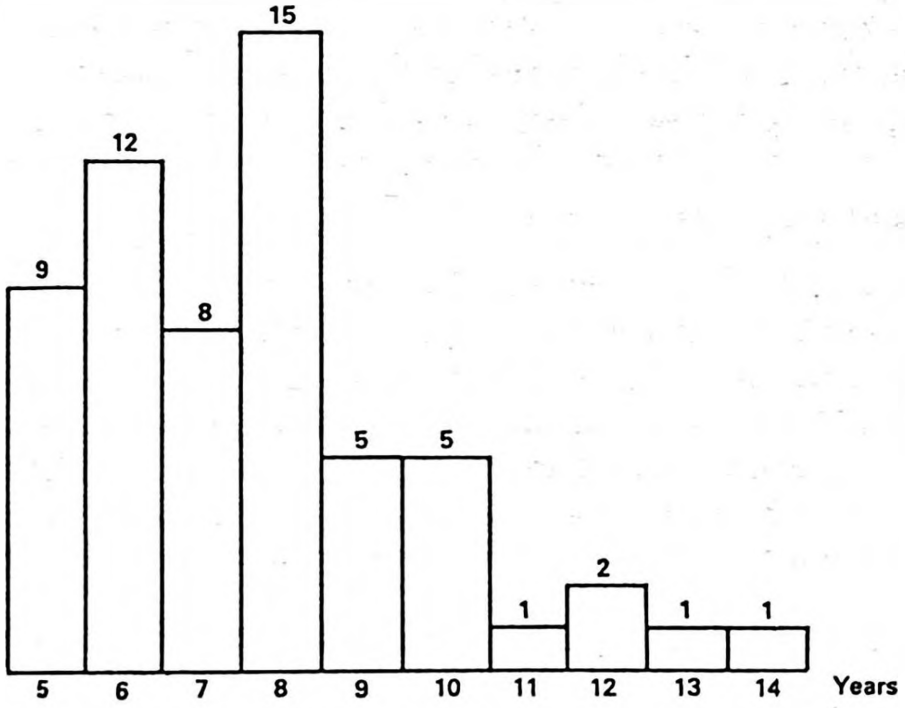

Fig. 1: Follow-up period (figures indicate number of patients in each follow-up period)

TABLE I: Results of Reevaluation of the Patients between March-April, 1988

n:	59
Mean age:	15.6 years (range 8-16 years)
Proteinuria:	absent
Hematuria:	absent
Physical findings:	Normal in all
Blood pressure:	Normal in all
Mean serum urea:	17.6 mg/dl (range 10-34 mg/dl)
Mean serum creatinine:	0.75 mg/dl (0.5-1.0 mg/dl)
C_3:	Mean 138.5 mg/dl (63-174 mg/dl)

Discussion

These results led to the conclusion that the long-term prognosis was favorable in our PSAGN patients since chronic renal failure had not been encountered. The patients not responding to the follow-up calls led us to be concerned but since their follow-up records prior to the end of the five-year period revealed no problems, it was concluded that the probable reason for their not responding was lack of any problems.

Although reports on the long-term prognosis of PSAGN are controversial, it is almost unanimously agreed that the outcome is always more favorable in children than in adults. Studies performed ten years after the Red-Lake PSAGN epidemic revealed no difference in the frequency of hematuria and in biopsy changes between the patients and the control group; none of the patients involved developed renal failure[2] Travis et al[3] have reported an eventual recovery rate exceeding 95% in PSAGN but they were uncertain of the outcome of acute glomerulonephritis (AGN) from other causes. Baldwin et al[4] have reported that more than half of the patients with PSAGN in New York showed evidence of renal damage in subsequent follow-ups in the absence of urinary and renal function abnormalities, however, the ultimate prognosis is unclear. Chronic renal failure developed in six of their 176 patients. Data from Trinidad indicate good long-term prognosis for most patients with epidemic PSAGN, with chronic renal failure resulting in only one patient[5,6].

Patients reevaluated five years after the Maracaibo epidemics displayed an excellent prognosis, with none developing chronic renal failure. Seventy-one of these patients were evaluated again 11-12 years after the epidemic. At that time one patient had developed chronic renal failure and required chronic dialysis.

Creatinine clearances were depressed in 12.6% of the patients, 11.2% had proteinuria and 4.2% had microscopic hematuria while two were hypertensive. These persisting abnormalities were present mostly in patients who were above the age of 12 at the onset of the disease[1,7].

Lewy[8] has reported chronic renal disease as a continuum of AGN in less than 5% of cases and emphasized that both age and renal functional status at onset are related to the rate of healing. Prognosis is excellent in preschool children while it is closely related to morphologic severity in school-age children. Hinglais et al[9] have performed biopsies early in the course of AGN and have reported on the predictive value with regard to the early histopathological features.

In our patient group, the cure rate was 100% during the follow-up period extending from 5-14 years. Contrary to reports of a low rate of chronicity in other series, chronic renal disease was not encountered at all in our series. Thus, from our experience, PSAGN appeared as a frequent disease having a benign course and a long-term prognosis.

Summary

Five hundred and eighty-eight patients diagnosed as having PSAGN were treated at our University Hospital and called in for a reevaluation study in 1988 to determine the long-term prognosis of the disease. Fifty-nine patients responded to the follow-up call, all of them being in good physical health. The blood pressure, urinalysis, serum creatinine, blood urea and β_1C globulin levels were within normal limits. These results led us to the conclusion that the long-term prognosis was favorable in our PSAGN patients since chronic renal failure had not been encountered.

REFERENCES

1. Garcia R, Rubio L, Rodriquez-Iturbe B. Long-term prognosis of epidemic poststreptococcal glomerulonephritis in Maracaibo: follow-up studies 11-12 years after the acute episode. *Clin Nephrol* 15:291, 1981.
2. Perlman LV, Herdman RC, Kleinman H, Vernier RL. Poststreptococcal glomerulonephritis: a ten-year follow-up of an epidemic. *JAMA* 194:63, 1965.
3. Travis LB, Dodge WF, Beathard GA, et al. Acute glomerulonephritis in children. A review of the natural history with emphasis on prognosis. *Clin Nephrol* 1:169, 1973.
4. Baldwin DS, Gluck MC, Schacht RG, et al. The long-term course of poststreptococcal glomerulonephritis. *Ann Intern Med* 80:342, 1974.
5. Potter EV, Abidh S, Sharrett AR, et al. Clinical healing two to six years after poststreptococcal glomerulonephritis in Trinidad. *N Engl J Med* 298:767, 1978.
6. Potter EV, Lipschultz SA, Abidh S, et al. Twelve to seventeen-year follow-up of patients with poststreptococcal acute glomerulonephritis in Trinidad. *N Engl J Med* 307:725, 1982.

7. Rodriguez-Iturbe B. Epidemic poststreptococcal glomerulonephritis [clinical conference]. *Kidney Int* 25:129, 1984.
8. Lewy JE. Acute poststreptococcal glomerulonephritis. *Pediatr Clin North Am* 23:751, 1976.
9. Hinglais N, Garcia-Torres R, Kleinknecht D. Long-term prognosis in acute glomerulonephritis: the predictive value of early clinical and pathologic features observed in 65 patients. *Am J Med* 56:52, 1974.