Urticaria-Associated Recurrent Glomerulonephritis with a Favorable Response to Indomethacin

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Sir,

Recurrent urticaria with cutaneous vasculitis is a systemic immune disorder of unknown origin [1]. A striking feature of the syndrome is the response to indomethacin (IND) of cutaneous lesions poorly controlled with steroids [2-6]. Information relative to the response of the renal damage to therapy is scarce. We present a patient with urticarial vasculitis, in whom IND improved the renal damage and prevented the recurrent episodes.

A 5-year-old girl was admitted to our hospital in January 1985 for rash, fever and macroscopic hematuria. Physical examination was remarkable for normal blood pressure, fever and a generalized, erythematous, maculopapular rash.

Complementary data: hemoglobin 11 g/dl; leucocytes 30,000/mm³ with 90% neutrophils; ESR 70-107; serum IgE 900 IU/ml; CH50, C3, C4, IgG, IgA and IgM were within the normal range; cryoglobulins, HBsAg and ANA were negative; proteinuria 140 mg/m²/h.

Four days after admittance, oliguric renal failure developed with a creatinine peak of 4 mg/dl.

A renal biopsy contained 40 glomeruli with intracapillary proliferation and exudation of neutrophils. Crescents were present in 55% of the glomeruli (fig. 1). The vessels and interstitium were normal. Immunofluorescence showed granular deposits of C3 in the mesangium, glomerular capillary wall and Bowman's capsule (fig. 1). IgG, IgA and IgM were absent. Electron microscopy revealed a normal glomerular basement membrane, without electron-dense deposits. A biopsy of involved skin showed perivascular infiltrates of neutrophils and monocytes. After treatment with

Fig. 1. Renal biopsy, a Glomerulus showing extracapillary proliferation. Methenamine silver, b Immunofluorescence showing granular fixation of anti-C3 antibody in the mesangium and glomerular capillary wall.

intravenous 6 M prednisolone (10 mg/kg/day) for 5 days, the renal function improved and the fever and rash disappeared, but severe proteinuria persisted. In the next 2 years, several recurrent episodes responded to high-dose corticosteroids, but neither these nor cyclophosphamide prevented them (fig. 2). IND was found to prevent new episodes. A flare-up closely followed IND dose reduction. At the time of this study,

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Year

1985

1986

1987

1989

1990

Age, years 5

10

Urticaria Hematuria

Proteinuria, mg/mz/h

Crp, mg/dl

6 M prednisolone (pulse)

Fig. 2. Clinical course and its relationship to therapy. Crp = Creatinine peak.

60

301!

Prednisone, mg/m2/day Daily

E3 Alternate days 0 Cyclophosphamide, 2.5 mg/kg/day IND, mg/day

20 0

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the patient was symptom-free on 10 mg/day of IND. Renal function was normal, and proteinuria was absent.

Renal disease is present in 10-30% of the patients with urticarial vasculitis, and is usually mild [2,3] but, as in this patient, it may be severe [6, 8]. Renal biopsy usually shows diffuse proliferative or membranoproliferative glomerulonephritis [1,3,6-10]. Hypocomplementemia is not always present.

Therapy of urticarial vasculitis may be problematic. No single drug has been effective in all cases. Corticosteroids, dapsone, immunosuppressive drugs and colchicine have been useful in certain patients. IND has successfully controlled the cutaneous manifestations [2-4], even in steroid-resistant cases [2], but the effect on renal injury was not detailed [2,4].

The mechanisms of the beneficial effect of IND in this patient are not clear. IND may modulate both the inflammatory [11] and the immune response [12] through the inhibition of arachidonate cyclo-oxygenase and, at high doses, of phospholipase A₂. Arachidonate derivatives have recently been shown to influence the production and mode of action of several cytokines [13,14] that may mediate the vascular damage in vasculitis [15].

References

McDuffie FC, Sams WM, Maldonado JE, Andreini PH, Conn DL, Samayoa EA: Hypocomplementemia with cutaneous vasculitis and arthritis: Possible immune complex syndrome. *Mayo Clin Proc* 1973;48:340-348.

Aboobaker J, Greaves WM: Urticarial vasculitis. *Clin Exp Dermatol* 1986;11:436-444.

Sanchez NP, Winkelmann RK, Schroeter AL, Dicken CH: The clinical and histopathological spectrums of urticarial vasculitis: Study of forty cases. *J Am Acad Dermatol* 1982;7:599-605.

Millns JL, Randle HE, Solley GO, Dicken CH: The therapeutic response of urticarial vasculitis to indomethacin. *J Am Acad Dermatol* 1980;3:349-355.

Monroe EW: Urticarial vasculitis: An updated review. *J Am Acad Dermatol* 1981;5:88-95.

Callen JP, Kalbfleisch S: Urticarial vasculitis: A report of nine cases and review of the literature. *Br J Dermatol* 1982;107:87-94.

Ludivico CL, Myers AR, Maurer K: Hypocomplementemic urticarial vasculitis with glomerulonephritis and pseudotumor cerebri. *Arthritis Rheum* 1979;22:1024-1028.

Moorthy AV, Pringle D: Urticaria, vasculitis, hypocomplementemia and immune-complex glomerulonephritis. *Arch Pathol Lab Med* 1982;106:68-70.

Sissons JGP, Williams DG, Peters DK, Boulton-Jones JM, Goldsmith HJ: Skin lesions, angio-oedema, and hypocomplementemia. *Lancet* 1974;ii:1350-1352.

Feig PU, Soter NA, Yager HM, Caplan L, Rosen S: Vasculitis with urticaria, hypocomplementemia, and multiple system involvement. *JAMA* 1976;236:2065-2068.

Lianos EA: Eicosanoids and the modulation of glomerular immune injury. *Kidney Int* 1959;35:985-992.

12 Goodwin JS, Cluppens J: Regulation of the immune response by prostaglandins. *J Clin Immunol* 1983;3:295-315.

Hart PH, Whitty DS, Piccoli DS, Hamilton JA: Control of IFN and PGE₂ of TNF α and IL-1 production by human monocytes. *Immunology* 1989;66:376-383.

Larrick JW, Wright SC: Cytotoxic mechanism of tumor necrosis factor- α . *FASEB J* 1990;4:3215-3223.

Cotran RS, Pober JS: Effects of cytokines on vascular endothelium: Their role in vascular and immune injury. *Kidney Int* 1989;35: 969-975.

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