

Nephrotic syndrome in very elderly: Should we treat aggressively?

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Abstract

Chronic kidney disease and acute kidney injury are being increasingly recognized in very elderly patients, aged 80 or more. In cases of suspected glomerulonephritis with or without nephrotic syndrome, the clinical decision-making of whether to obtain a renal biopsy and treat with immunosuppressive therapy should not be based on advanced age alone but take into consideration the patient's functional status and overall prognosis. Herein, we report a case of an elderly patient with minimal change disease who benefitted from a timely renal biopsy and aggressive immunosuppressive therapy.

Case Report

An 86-year-old White man with a history of hypertension and hypothyroidism has presented with worsening swelling in the feet and approximately 20-pound weight gain over a period of few weeks. His blood pressure was 186/96 mmHg and physical examination revealed 3+ bilateral pitting pedal edema up to the thighs. Laboratory studies demonstrated acute kidney injury with a serum creatinine of 2.8 mg/dL (baseline ~1.1), nephrotic range proteinuria with a urine protein-creatinine ratio of 10.6 g/g (ref: <150 mg/g), hypoalbuminemia with a serum albumin of 2.3 g/dL (3.5-5) and hypercholesterolemia with a total cholesterol level of 375 mg/dL (150-199). Serum thyroid-stimulating hormone was slightly high at 8.7 mIU/L (0.3-4.5), but improved from a previous value of 16 on levothyroxine therapy. Echocardiography demonstrated normal ejection fraction. He was started on intravenous diuretic therapy and empiric steroid therapy with prednisone ~1 mg/kg/day for nephrotic syndrome. Serologic work up for antinuclear antibodies and antineutrophil cytoplasmic antibodies was negative. Serum protein electrophoresis was negative for monoclonal protein. A renal biopsy was obtained which, unfortunately had inadequate tissue. His

renal function worsened requiring initiation of hemodialysis on day-8 of admission. A repeat renal biopsy was obtained which was consistent with minimal change disease (Figure 1). He was discharged on hemodialysis and prednisone therapy was continued. 2 months after initial presentation, he showed signs of renal recovery and the hemodialysis was stopped. His proteinuria was minimal (0.84 g/g) with a serum creatinine of 1.46 mg/dL at 4-months and he was on a tapering dose of prednisone 20 mg/day at that time. However, 2 months later (6-months after initial presentation), he had relapse of the disease with a serum creatinine of ~2 mg/dL and proteinuria of 13.7 g/g. Prednisone dose was increased to 160 mg every other day and his protein excretion normalized in 2 months. Prednisone was tapered off and he was treated with mycophenolate mofetil for 1 year after that. Renal function remained stable with no proteinuria. His clinical and laboratory course is depicted in Figure 2.

Discussion

With increased life expectancy, chronic kidney disease and acute kidney injury are being increasingly recognized in the very elderly (those aged more than 80 years).^{1,2} Membranous nephropathy, amyloidosis, and minimal change disease are the three

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most frequent diagnoses in very elderly patients with nephrotic syndrome.³ Renal biopsy plays a vital role in diagnosing the

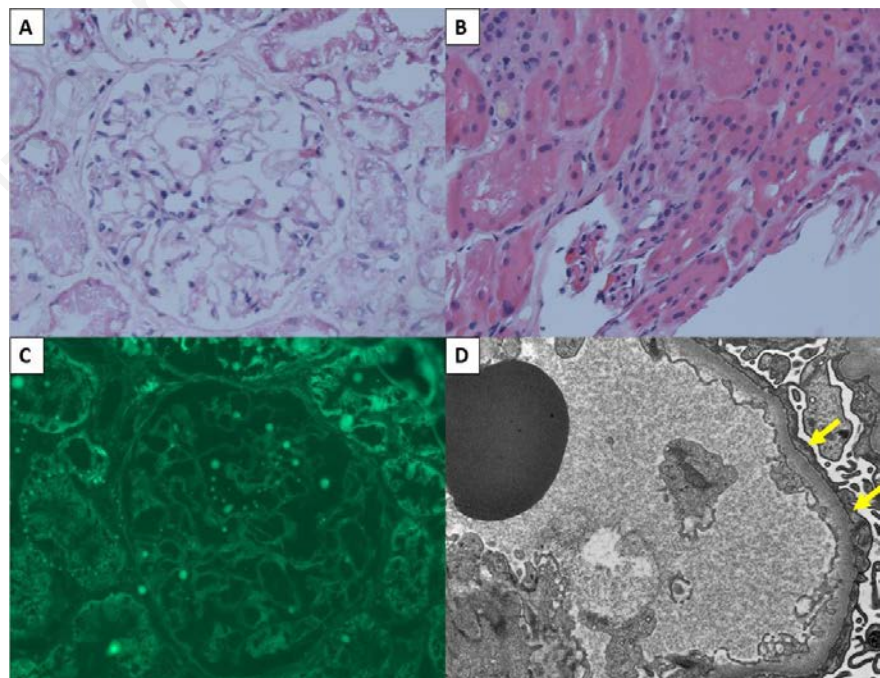


Figure 1. Renal biopsy demonstrating (A) no glomerular hypercellularity or sclerosis on light microscopy, (B) no tubulointerstitial nephritis on light microscopy (C) normal immunofluorescence, and (D) diffuse podocyte foot process fusion on electron microscopy (arrows). There were no immune complex deposits.

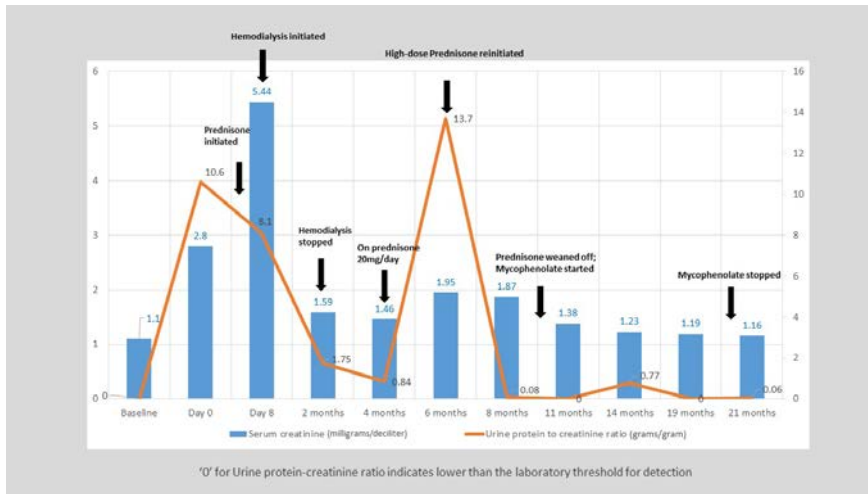


Figure 2. Graph depicting the clinical course: serum creatinine and urine protein excretion over time.

potentially reversible lesions in patients with glomerulonephritides and provides prognostic information, thereby guiding therapeutic decisions. However, it is not without complications. As Physicians, we weigh risks and benefits in determining the usefulness of a procedure or therapy before making a recommendation. It is important to realize that advanced age alone is not a contraindication for renal biopsy or immunosuppressive therapy, especially when the patient is functional at baseline without any terminal illness. Of note, in a renal biopsy series conducted in very elder-

ly patients, at least 40 of 100 biopsies showed a lesion that would benefit from therapeutic intervention, and the remaining biopsies provided prognostic information and/or ruled out a more severe condition, preventing potentially harmful empiric therapy.⁴ Because of the timely renal biopsy and appropriate immunosuppressive therapy, our patient remained off dialysis despite a relapse. It is particularly important, as we now know that elderly patients who are on dialysis have a higher burden of age-related problems such as frailty, falls, and cognitive impairment.⁵

Conclusions

Advanced age alone is not a contraindication for renal biopsy, immunosuppressive therapy, or renal replacement therapy. Unless there is any absolute contraindication for the procedure, a timely renal biopsy may reveal a condition that is potentially treatable and provide prognostic information.

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