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Letters

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Rapid remission of minimal change disease with angiotensin II antagonist treatment in a type 1 diabetic patient with no diabetic nephropathy

Sir,

A type 1 adult diabetic patient without previous microalbuminuria suffered from the explosive onset of nephrotic syndrome, with all the laboratory and histopathologic features of idiopathic minimal change disease (MCD). Co-administration of angiotensin-converting enzyme inhibitor (ACEI) and angiotensin II receptor blocker (ARB) led to complete remission within 2 weeks. This case illustrates the efficacy of a first-line treatment with Angiotensin II (Ang II) antagonists on a background that would have lead to steroid untoward effects if this conventional approach had been chosen. It suggests that Ang II antagonists might be beneficial to other patients with MCD and avoid corticosteroid treatment.

A 32-year-old man was hospitalized for the sudden onset of oedema. He had been diagnosed with type 1 diabetes at the age of 21 and was treated with insulin. One year before his serum creatinine level was 72 μmol/L and he had no albuminuria.

He was 167 cm tall and weighed 80.4 kg. Blood pressure was 142/80 mmHg. He had pitting oedema of the lower extremities and pleural effusions. Funduscopy was normal, and a vibration test was only slightly disturbed.

Urinalysis revealed 3+ protein with no erythrocytes or casts. Laboratory data found a serum creatinine of 81 μmol/L; total protein, 40 g/L; serum albumin, 17 g/L; 24-h urinary protein, 10.6 g; haemoglobin A1c, 6.8%. Antinuclear antibodies, antineutrophil cytoplasmic antibodies, antistreptolysin O and complement fractions were all within normal limits. The urinary protein selectivity index was 0.03.

The renal biopsy examined by light microscopy yielded 9, slightly hypertrophic, nonsclerotic glomeruli with mild mesangial expansion without nodule formation. The glomerular basement membrane (GBM) thickness was normal. A small area of tubular atrophy was observed. There were no mononuclear cells in the interstitium. Arteries and arterioles showed no sclerosis or hyalinosis. Immunofluorescence disclosed linear IgG staining of the GBM and of the tubular basement membranes (TBM). Electron microscopy disclosed diffuse podocyte foot process fusion. The mesangial areas displayed a mild increase in matrix and no dense deposits. The TBMs were thicker than normal. A diagnosis of MCD was considered as most probable, occurring by coincidence in a diabetic with no definitive diabetic glomerulopathy. In an attempt to avoid glucocorticoid treatment, he was commenced on lisinopril 10 mg and losartan potassium 50 mg. Blood pressure was normalized, urinary protein started to decrease rapidly and was nil on day 16 (Figure 1).

Cases of MCD occurring in diabetics have been described [1] and complete remission was obtained in them with corticosteroid or immunosuppressive treatment.

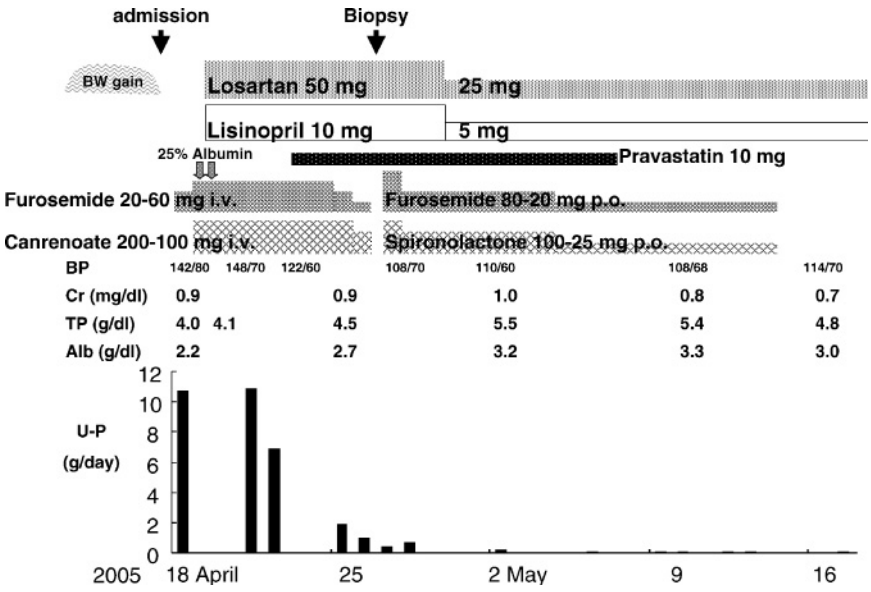

Fig. 1. Clinical course of the patient. This graph illustrates the rapid remission of nephrotic syndrome following treatment with Ang II antagonists.

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However, despite the well-known antiproteinuric effect of Ang II antagonists [2–6], in none of these cases was a similar treatment undertaken alone. We feel that in our patient Ang II antagonists were credited with an unexpected success and avoided the toxic effects of corticosteroids and/or of immunosuppressive medications. We admit that a spontaneous remission cannot be ruled out, as it has been observed in up to one-third of adults with MCD [7,8]. However, in such a case it is slowly obtained and requires a mean time of 79 weeks [7]. This leads to believe that Ang II antagonists were the best explanation for the rapid remission in our patient. This case prompts us to suggest that Ang II antagonists should be systematically tried in MCD and that corticosteroids might be avoided with this symptomatic first line treatment, a treatment that has the advantage of being devoid of major side effects.

Conflict of interest statement. None declared.

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The pattern of proteinuria following karate (Kumite) competitions

Sir,

Despite the large amount of proteins in the plasma, the urine is virtually protein free due to the selectivity of the glomerular barrier [1]. The major component of urinary protein is a tubular protein (Tamm-Horsfall) while albumin constitutes 30–40% of the total urinary protein. Various physiologic settings, including exercise, can induce a transient increase in the urinary protein excretion that is usually benign and reversible. The type of post-exercise proteinuria depends on the intensity of exercise rather than its duration, so that moderate exercise induces glomerular and heavy exercise glomerular-tubular mixed-type protein loss [2]. Post-exercise proteinuria may be due to the loss of the charge selectivity from the glomerular capillary wall, a relative preservation of the glomerular filtration rate, proteinuria out of proportion of maximal tubular reabsorption capacity following heavy exercise [2,3] and oxidative stress produced by free radicals due to enhanced oxygen consumption in muscles [4]. The purpose of our study was to compare the amount and pattern of proteinuria before and after karate (Kumite) competition in 18 male practitioners, aged 18–21 years, with similar physical characteristics. All practitioners competed in three rounds, each lasted 3 min, with a 10 min resting interval between them. Urine samples were collected just before the competition and during 24 h thereafter. Total urinary protein, urinary beta2-microglobulin B2M as tubular and albumin as glomerular protein were assayed. Before competition, the mean value of total urinary protein, albumin and B2M as basal levels were 70.68 ± 12.5, 4.84 ± 3.17 and 0.0217 ± 0.0133 mg/day, respectively. After competition, the mean values of 24-h total urine protein (196.05 ± 70.88 mg/day), albumin (34.07 ± 32.88 mg/day) and B2M (0.0933 ± 0.0372 mg/day) levels were significantly increased ($P = 0.023$, $P = 0.001$ and $P < 0.001$). This study revealed significantly increased proteinuria of a mixed type (albumin and B2M) in all practitioners following exhaustive short-term competition. Despite the mixed type of proteinuria, we observed a six-fold increase compared to the basal level in urine albumin (versus four-fold increase for urinary B2M) suggesting a more prominent role of glomerular proteinuria probably due to glomerular membrane permeability changing factors, such as sympathetic overactivity and competitive stress.

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