Pentoxifylline in Management of Proteinuria in Diabetic Nephropathy

K.		Tripathi
J.	Jai	Prakash
D.	Deoraj	Appaiha
P.K.		Srivastava

Department of Medicine and Nephrology, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India

K. Tripathi, Reader, Dept. of Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi-221005 (India)

Dear Sir,

We read with interest the article entitled 'Decreased albuminuria by Pravastatin in hyperlipaemic diabetics', in volume 59, No. 4, 1991, of Nephron [1]. Recently, we completed a study entitled, 'Effect of pentoxifylline in the management of proteinuria amongst diabetics'. The study was conducted on 20 patients showing clinical evidence of diabetic nephropathy in the form of overt proteinuria and evidence of diabetic nephropathy with or without compromised renal function. The majority of patients had maturity-onset diabetes (80%) and 20% were non-insulin dependent. Evidence of triopathy (neuropathy, retinopathy and nephropathy)

was present amongst 25% of the cases. 50% had diabetes of less than 10 years' duration whereas 25% patients had diabetes of more than 15 years. Most of the patients in the hypertensive group were azotemic, with mean serum creatinine values of 2.6 ± 0.6 mg/dl, whereas, amongst the normotensive group, serum creatinine was normal. All patients had overt proteinuria of more than 1 g/24 h. Amongst the hypertensive group, proteinuria ranged between 2.25 and 900 g/day, whereas, in the normotensive group, it was between 1.05 and 5.10 g/day (fig. 1). After a follow-up of 3 consecutive months with pentoxifylline, 1,200 mg in divided doses/day, there was a

significant reduction in mean proteinuria values (hypertensive group: 6.2 ± 2.4 to 3.8 ± 2.1 g/day; normotensive group: 2.9 ± 1.5 to 2.1 ± 1.6 g/day, $p < 0.01$) (fig. 1). The hypertensive group did not receive antihypertensive drugs, and those who developed hypertensive crisis were dropped from the study. There was a significant improvement in the mean glomerular filtration rate (hypertensive group: 40.0 ± 11.9 to 48.1 ± 12.9 ml/min; normotensive group: 74.0 ± 35.1 to 81.9 ± 25.0 ml/min; fig. 2) and also a reduction in blood urea and serum creatinine. The responses were more obvious amongst normotensives than amongst hypertensives.

6-1
160 c 140
I e 120

□ Before pentoxifylline ■ Hypertensive

- 20

Fig. 2. Distribution of glomerular filtration rate among hypertensive and normotensive groups before and after pentoxifylline.

0644-0641S2.75/0

Pentoxifylline is being used to improve rheology and microcirculation in peripheral vascular diseases [2]. Most of the beneficial results have been demonstrated in those patients who had an associated cerebrovascular accident [3]. Recently, two such works have been published from this country [4, 5], though none of the authors, including this one, has used microalbuminuria. This technique is not readily available in developing countries whereas estimation of gross proteinuria is very economical and can be used to monitor the clinical response amongst patients of diabetic nephropathy. Solete and Ferrari [6] have also demonstrated that normalization of blood rheology leads to a marked reduction in proteinuria and albumin excretion, and this has also been our observation. The drug seems to be promising as, contrary to converting enzyme inhibitors, it does not produce a reduction in glomerular filtration rate and hyperkalemia amongst diabetics.

References

Shoji T, Nishizawa Y, Toyokawa A, Kowagishi T, Okuno Y, Morn H: Decreased albuminuria by paravastinin hyperlipidemic diabetics. *Ne-phron* 1991;59:664-665.

Angelkort B, Maurin N, Boateng K: Pentoxifylline in peripheral vascular disease. Influence of pentoxifylline on erythrocyte deformability in peripheral occlusive arterial disease. *Curr Med Res Opin* 1979;6:225.

Kopenhagen K, Wenig HG, Multer K: Pentoxifylline in cerebrovascular disease. The effect of pentoxifylline on cerebral blood flow. A double blind study. *Curr Med Res Opin* 1977;4:681.

Sharma AK, Pandya P, Sharma P: Intraglomerular hypertension, red cell deformity and diabetic nephropathy clinical efficacy of pentoxifylline: *Cardioneurology*; in Timo M, Weizman Y (eds): *Proc 3rd Eur Meet on Cardioneurology*, Assisi. Milan, Wichtig 1991, pp 171-174.

Tripathi K, Mishra R, Agrawal JK, Bajpai HS: Effect of Dipyridimole and pentoxifylline on regression of gross proteinuria in diabetic nephropathy. *J Assoc Physicians India* 1991; 39(i):110.

Solerte SB, Ferrari E: Pentoxifylline in diabetic vascular complications diabetic retinal vascular complications and erythrocyte filtrability: Results of 2-year follow-up study with pentoxifylline. *Pharmatherapeutica* 1985;4:341.

642

Tripathi/Prakash/Appaiha/Srivastava
in Diabetic Nephropathy

Pentoxifylline in Management of Proteinuria