Spontaneous and LPS-Stimulated Release of Tumor Necrosis Factor-Alpha by Peripheral Blood Monocytes in Patients with Focal Glomerular Sclerosis

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Dear Sir,

Focal glomerular sclerosis (FGS) is a kidney disease of unknown etiology, which may lead to chronic renal failure. There are some observations indicating that the cellular immune system plays a key role in the patho-genesis of FGS [1,2]. The tissue of affected glomeruli is infiltrated by macrophages [3].

Interleukin-1 and tumor necrosis factor- α (TNF) are crucial cytokines which drive cell-mediated immune responses [4]. In an attempt to identify an in vitro correlation of TNF levels with disease activity in FGS, we measured TNF levels in samples of peripheral blood monocytes (PBM) from 8 FGS patients with the nephrotic syndrome (NS). Findings were compared with those from patients with clinically stable FGS as well as from 18 normal controls. Twenty additional patients with lipoid nephrosis (LN) were studied as a disease control. Levels of TNF were measured by a previously described method of Flick and Gifford [5] using [^3H]-thymidine-labeled L929 cells.

The spontaneous and lipopolysaccharide (LPS)-induced TNF levels of the FGS patients with NS were significantly higher than

100

90 80 70 60H

Normal controls

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11: Unstimulated

m3:LPS

FGS with FGS without LN with LN withoutNS NS NS NS

Fig. 1. Spontaneous and LPS-stimulated (1 $\mu\text{g}/\text{ml}$) TNF secretion in the culture supernatant after a 24-hour culture period by 105 PBM of FGS and LN patients and 105 PBM of normal

individuals. The patients were divided into untreated (O) and treated with low doses (< 15 mg) prednisolone (Δ). Each data point represents data from each patient or control. Mean values are shown by vertical bars. Significantly different from normal controls: ** $p < 0.01$; * $p < 0.05$, p values by Student's t test. Also significantly different compared to patients without the NS: ** $p < 0.02$; * $p < 0.05$.

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both the FGS group without NS and 18 normal subjects, whereas the mean values of the LN group were not significantly different from the normal controls (fig. 1). These in vitro findings suggest that TNF may be an indicator of disease activity in patients with FGS. Further studies will be required to elucidate the interactions of TNF and other cytokines, such as interleukin-6 and interleukin-8, in the progression of FGS.

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