URINARY MONOCYTE CHEMOTACTIC PROTEIN-1 IS ASSOCIATED WITH URINARY OXIDATIVE STRESS, MICROALBUMINURIA AND THE BACTERIOLOGICAL INDEX IN LEPROSY

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OBJECTIVES

Renal lesions in leprosy have been extensively described in medical literature. Leprosy patients can present with kidney disease from glomerular (glomerulonephritis, amyloidosis) or tubule-intertitial etiology. The aim of this study is to evaluate renal abnormalities in leprosy patients through traditional biomarkers of renal disease and Monocyte Chemotactic Protein-1 (MCP-1).

METHODS

This is a cross-sectional study of 44 patients with clinical and laboratory diagnosis of leprosy with no previous anti-mycobacterium treatment. Patients were recruited in public health centers in Fortaleza, Ceara, Brazil, between August 2012 and August 2013. A group of 15 healthy subjects were included as a control group. Skin smear was assessed through a bacteriological index - from 0 to 6+. Glomerular filtration rate (GFR), protein excretion, microalbuminuria, urinary oxidative stress (malondialdehyde-MDA) and urinary MCP-1 were estimated. All urine measurements were normalized by urinary creatinine concentration.

RESULTS

Table 1: Comparison of renal function parameters between the clinical forms of leprosy and control groups.*p<0.05(DV/VV vs TT/DT and Control).**p<0.05(TT/DT, DD, DV/VV vs Control)

Parâmetros	TT/DT (n=14)	DD (n=19)	DV/VV (n=11)	Control (n=15)
S_{Cr}(mg/dL)	0,85±0,21	0,89±0,12	0,80±0,17	0,81±0,14
$GFR_{E\ mL/min/1.73m2}$	124±31	107±23	117±35	115±18
Urine Protein Excretion (mg/g-Cr)	60±29	86±52	**129±72***	62±37
Albumin Excretion (mg/g-Cr)	4,4±3,9	4,5±3,7	5,1±3,7	2,0±1,2
S_{Na} (mEq/L)	142±2,8	141±2,6	139±3,8	139±1,5
S_K (mEq/L)	4,5±0,3	4,4±0,4	4,5±0,7	4,4±0,4
FE_{Na} (%)	0,7±0,5	0,8±0,6	0,7±0,5	0,5±0,3
FE_K (%)	4,4±2,3	6,9±5,1	6,8±5,4	5,6±3,0
PCR	1,4±0,9	6,0±13	22,9±33,4	---
MDA (mmol/g-Cr)	**1,7±1,4****	**1,5±0,7****	**2,3±1,7****	0,12±0,07

Figure 2. Pearson correlations of urinary (MCP-1) with urinary MDA and urine albumin excretion. * p<0.05, **p<0.01.

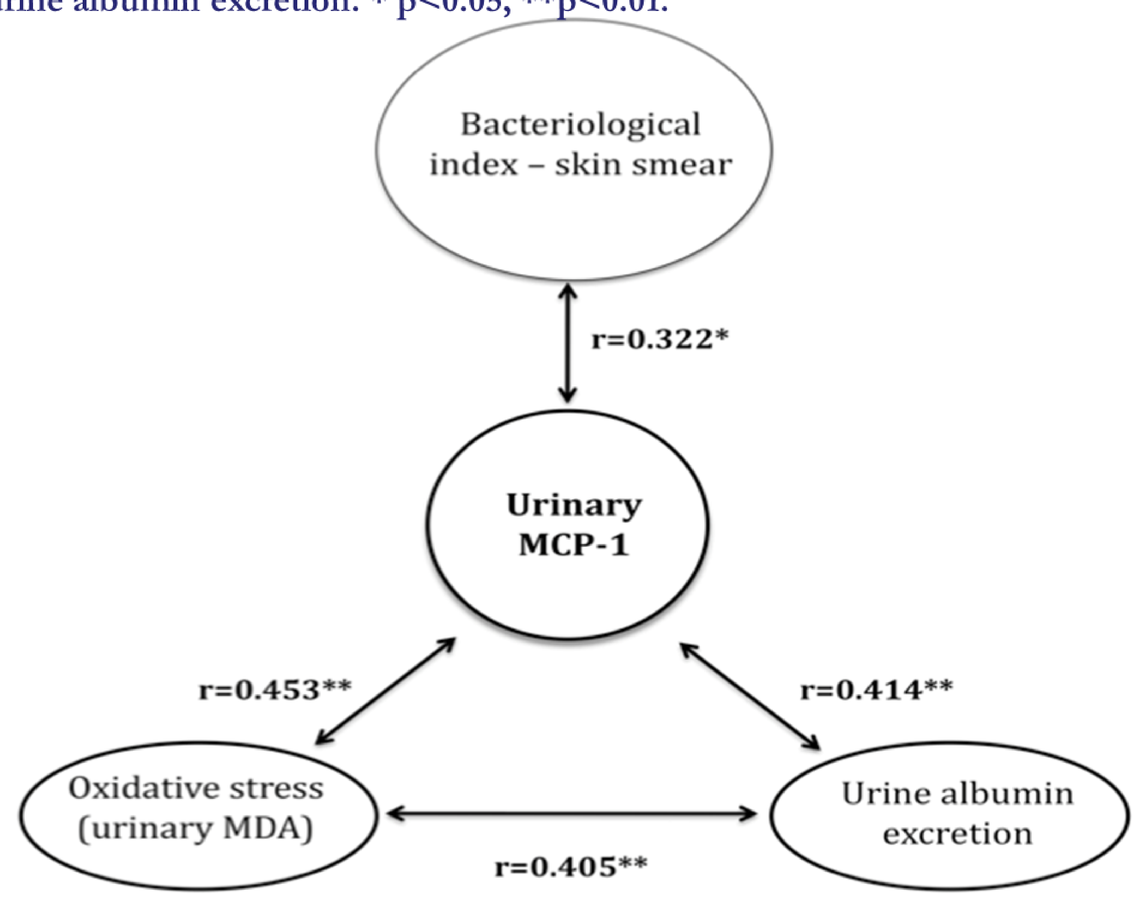
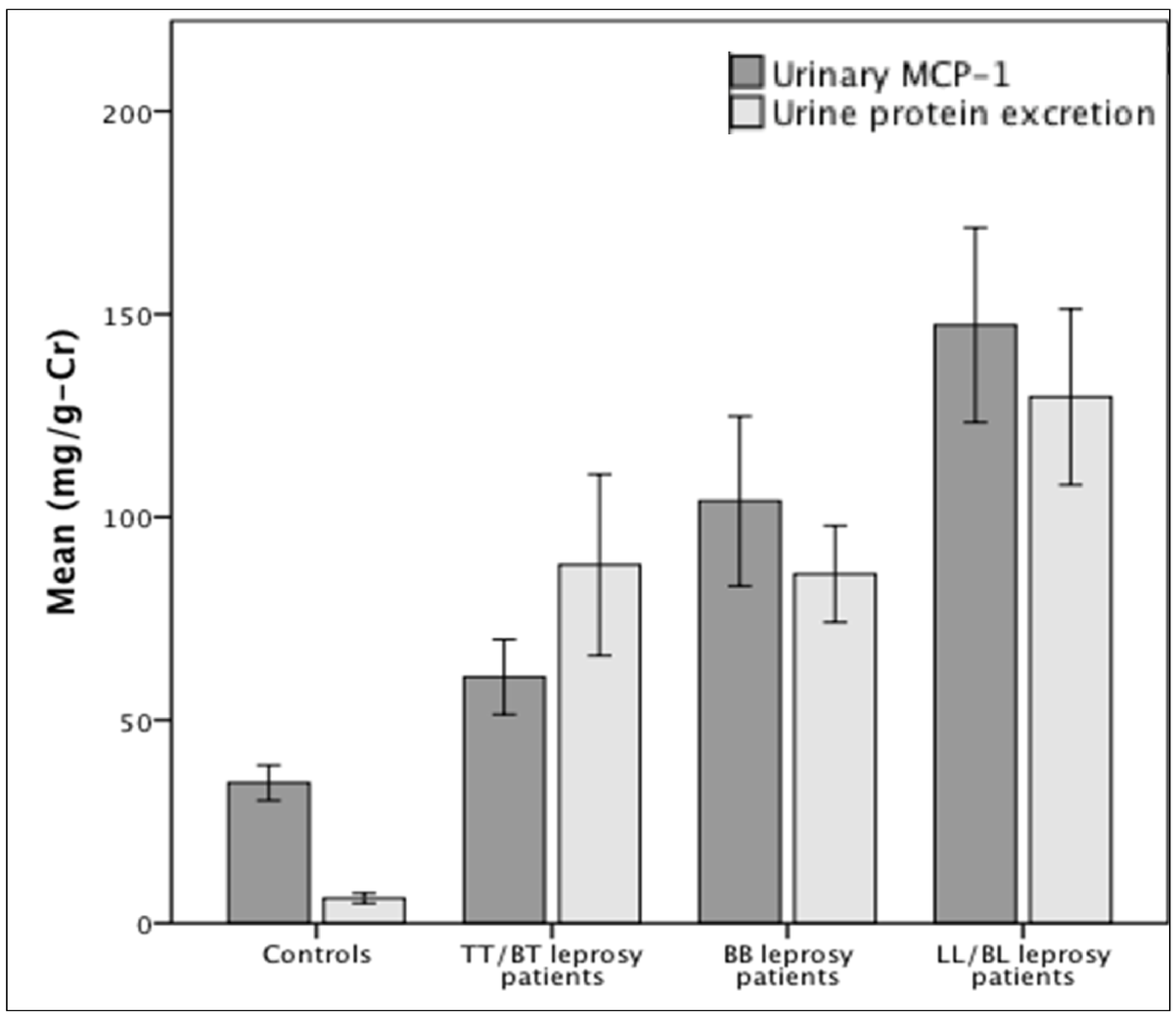


Figure 1: Urinary MCP-1 and protein excretion in controls and leprosy patients according their clinical classification. Urinary MCP-1: p<0.05 for all groups.



CONCLUSION

We demonstrated that leprosy patients with no clinical kidney disease have increased urinary MCP-1 and its levels are even higher as patients approximates to lepromatous polar form. Moreover, urinary MCP-1 was associated with urinary oxidative stress and urine albumin excretion, suggesting that these patients are at increased risk of developing clinical kidney disease in the future.

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