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URINARY ENDOSTATIN GENE EXPRESSION IN LUPUS NEPHRITIS.

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Background: Lupus nephritis (LN) is one of the most severe forms of Systemic Lupus Erythematosus (SLE). Given that the kidney is the main site of inflammation in LN, biomarkers in urine may reflect this inflammation more closely than those in the blood. Many groups have studied messenger RNA (mRNA) expression of urinary biomarkers in patients with SLE, investigating which is likely to be most helpful for monitoring renal disease activity.

Endostatin (END) is a natural proteolytic fragment of collagen XVIII and has been known to have modulatory function in angiogenesis and inflammation. In contrast to the general angiogenic factors, the expression profiles and activity of angiogenic inhibi-tors like END in LN are not well defined.

Objectives: We proposed to study gene expression level of END in urine from LN patients.

Methods: A total of 45 patients, 36 with renal involvement and 9 non-renal were included. Urine samples from active patients were divided according Protein Creatinin ratio (P/C) as: Group 1, P/C < 1 (n=18) and Group II, P/C> 1 (n=18), and non renal patients: Group III (n=9). Levels of gene expression of END were measured using Quantitative Real Time PCR (QPCR). All amplifications were carried out in duplicate and threshold cycle (C_t) scores were averaged for calculations of relative expression values. The C_t scores were normalized by subtracting the corresponding β2Microglobuline (β2M) control, or $\Delta Ct=C_{t,gene}- C_{t,B2M}$. To test for differential gene expression between groups a variance analysis (ANOVA) and t test was performed.

Results: ΔCt is inversely proportional to the gene expression level. Urinary END was significantly decreased in active renal SLE patients compared with no-renal SLE patients (Table 1). Among active renal patients, END gene expression was elevated in Group I compared with Group II (test t, p=0,0192).

Table 1: Levels of END gene expression between groups (ANOVA, p=0,0327).

END (mean ΔCt)	SLE patients			**p=0,0327**
	Active renal		No-renal	
	Group I (P/C< 1)	Group II (P/C >1)	Group III	
	6,521	9,572	5,414	

Conclusions: Urinary END had the capacity to discriminate patients with active renal SLE from those with no-renal disease and exhibited the lowest urinary level in patients with P/C >1.

This study provides evidence that measuring urinary END could be an important new biomarker in patients with SLE without renal activity.

References: 1- Angiogenesis and hypoxia in the kidney. Tanaka T *et al.* Nat. Rev. Nephrol. 9, 211-222 (2013).

2- Can measuring urinary biomarkers improve the management of Lupus Nephritis? Rahman A. Arthritis Research & Theraphy. 14, 127 (2012).

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