URINARY PROTEIN PROFILE COMPARISON BETWEEN SLE PATIENTS WITH AND WITHOUT RENAL INVOLVEMENT

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Background: Lupus nephropathy (LN) is an important cause of morbidity and mortality in patients with Systemic Lupus Erythematosus (SLE). The objective of the renal biopsy is to determine the type of glomerulonephritis that the patient presents to direct treatment. Considering that it is a specialised technique and not risk free, a proteomics study is proposed to determine biomarkers that help us to differentiate patients diagnosed with SLE with and without renal involvement.

Objectives: To determine if there is a different pattern of proteins between patients diagnosed with SLE with and without renal involvement.

Methods: We selected 12 patients diagnosed with SLE with renal involvement and 14 patients diagnosed with SLE without renal involvement. There were no differences between groups according to race, gender and age. The patients were classified as high, low or negative level of proteinuria in the urine. A 24 hour urine sample was obtained for analysis.

Results: We have done a Principal Component Analysis (PCA) where we can see differences between samples from patients who have high level of proteinuria in 24 hours and patients who have not renal involvement. Patients with positive proteinuria but not high level are a little confuse figure 1.

A total of 292 proteins (identified with at least two peptides with a FDR<1%) were quantified and further considered in the analysis. The Student t-test analysis reflected the differential presence of 147 proteins (p<0.01). Of these, 130 were less abundant in the urine of the patients with renal damage, whereas 17 showed the opposite pattern, being more abundant in the patients with affected renal function. Consistent with the nature of the sample, the Gene Ontology (GO) analysis of the whole list of identified proteins revealed the presence of extracellular (277 proteins, p=2.25E-171) and secretory-related proteins (49 proteins, p=1.1E-09) among others. Proteins related to defensive processes were prominent among them. Interestingly, the subset of proteins whose abundance increases upon renal damage is comprised of typical highly-abundant serum proteins. These proteins render a large number of peptides, suggesting they are very abundant. This protein pattern may reflect the higher albuminuria characteristic of patients with affected renal function. On the other hand, a number of proteins became significantly less abundant upon renal damage. The presence of highly abundant serum proteins in the urine of patients with compromised renal function may explain this phenomenon, since this will provoke a dramatic reduction in the relative abundance of the proteins already present in their urine.