VASCULITIS AND LUPUS

Su0042 AN EXCELLENT BIOMARKER PANEL FOR IDENTIFICATION OF ACTIVE LUPUS NEPHRITIS IN CHILDREN

Eve MDD Smith1, Louise Oni1, Angela Midgley1, Kjell Tullus2, Clarissa Pilkington3, Stephen Marks2, Caroline Jones4, Diana Ekda1y1, Rachel Corkhill1 and Michael W Beresford1
1University of Liverpool, Institute of Child Health, Liverpool, United Kingdom, 2Great Ormond Street Hospital, Paediatric Nephrology, London, United Kingdom, 3Great Ormond Street Hospital, Paediatric Rheumatology, London, United Kingdom, 4Alder Hey Children’s Hospital, Paediatric Nephrology, Liverpool, United Kingdom

Introduction and Aims: Lupus nephritis (LN) is one of the most serious organ manifestation of Juvenile-onset systemic lupus erythematosus (JSLE), affecting up to 80% of patients. Conventional markers of JSLE disease activity fail to predict LN flares. Single novel urine biomarkers are good, but not excellent, at predicting LN flares. The aim of this work is to assess if combining novel biomarkers can produce an excellent biomarker panel for identifying active LN.

Methods: Novel urinary biomarkers; vascular cell adhesion molecule-1 (VCAM-1), monocyte chemoattractant protein 1 (MCP-1), lipocalin like prostaglandin D synthase (LPGDS), transferrin, ceruloplasmin, alpha-1-acid glycoprotein (AGP) and neutrophil gelatinase associated lipocalin (NGAL) were quantified at an individual clinic visit. Renal disease activity was defined using the renal domain of pBILAG2004 score. Active LN patients were defined as a renal pBILAG2004 of A or B and previous histologically confirmed diagnosis of LN, inactive LN patients a renal pBILAG2004 score of D or E. Binary logistic regression modelling was used to assess combinations of novel biomarkers.

Results: 61 JSLE patients and 19 healthy controls (HC’s) were recruited. 15 (25%) patients had active LN and 46 (75%) had in-active LN. Urinary AGP, ceruloplasmin, VCAM-1, MCP-1, LPGDS and transferrin levels were significantly higher in active LN compared to inactive LN patients (all p<0.01). Urinary NGAL levels did not differ between groups (p=0.245). AGP was the best single biomarker (AUC 0.890, p<0.001). Combining novel biomarkers improved the identification of active LN (optimal combination; AGP, ceruloplasmin, LPGDS, transferrin, AUC 0.923, p<0.001, see Table).

Conclusions: A combination of novel urinary biomarkers produces an excellent ‘biomarker panel’ for active LN identification in patients with JSLE. Prospective validation of this panel is needed in developing its use in clinical practice.