

2. 50% of patients with SLE and serositis manifested with renal lupus and high SLICC scores, which is higher compared to other studies on SLE.

Conclusion Cardiopulmonary involvement is increasingly detected in patients with SLE.

REFERENCE

1. Turaka V, Koshy K, George T, et al. Clinical outcomes in patients with cardiac lupus: a retrospective study. *Indian Journal Of Rheumatology* 2020;15(2).

PO.3.64 OPTIMISING TYPE I INTERFERON GENE EXPRESSION ASSAYS: ADDRESSING THE RESEARCH AGENDA OF A EULAR TASK FORCE

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Purpose Type I interferon (IFN-I) assays are an important emerging biomarker in SLE. A EULAR Task Force for IFN-I assays proposed a research agenda, which included key questions concerning the use of IFN-I stimulated gene (ISGs) and protein assays. These include: (i) influence of sample type; (ii) validated reference genes that are not influenced by IFN-I; (iii) for both gene expression and protein assays: confirmation that ISGs or proteins are specifically responsive to IFN-I, not IFN-II.

Methods To compare sample types, we extracted RNA from paired whole blood (TEMPUS) and PBMC samples obtained from 10 healthy controls, 7 at risk non-progressor, 6 at risk progressor, 10 inactive SLE and 12 active SLE. These were assessed for published IFN Scores A (module 1.2 and 3.4) and Score B (modules 3.4 and 5.12) using TaqMan. Bland-Altman agreement plots compared results.

To assess reference genes, we analysed the same set of samples for expression of a panel of 16 reference genes from the literature using TaqMan. Results were analysed using Ref-Finder software.

To compare the specificity of IFN response of candidate ISGs and proteins, we performed in vitro stimulation of healthy whole blood and PBMCs using IFN- α , IFN- β , IFN- κ , IFN- λ , IFN- γ , IL-1, IL-6, IL-10 and TNF. Samples were analysed at 0, 6 and 24h using TaqMan for a panel of 26 ISGs (summarised as IFN-Score-A and IFN-Score-B) as well as the transcripts for 17 IFN-stimulated proteins (mostly chemokines) described in the EULAR Systematic Literature Review.

Results IFN-Score-A correlated well between whole blood and PBMC samples ($r^2=0.8614$). IFN-Score-B showed weaker correlation ($r^2=0.2024$) and Bland-Altman plot showed greater deviation from line of agreement than for Score A.

There were marked difference in stability of published reference genes. Across several algorithms, the most consistently stable genes were: YWHAZ, PGKI and GUSB. The least stable were RPLPO, HMBS and ACTB (β -actin). Calculation of IFN Scores using the least stable reference genes demonstrated greater variability between samples and poor separation of SLE and HC samples compared to calculation using the most stable reference genes.

IFN- α strongly induced IFN-Score-A, IFN-Score-B and expression of CCL3, CCL4, CCL5, CCL7, CCL8 and CXCL12 as compared to IFN- γ . CXCL9 and CCL26 were more responsive to IFN- γ stimulation than IFN- α . CCL2,

CCL19, CCL20, CCL21, CCL23 and CXCL11 demonstrated similar levels of response to IFNs. Expression of CXCL1, CXCL8 and CCL13 were suppressed by IFN- α . The chemokine transcripts CCL2, CCL7, CCL13, CCL20, CCL23, CXCL1 and CXCL8 were more responsive to IL-1 than IFN- α . CCL3, CCL19, and CCL21 responded to IL-1 similarly to IFNs.

Conclusions (i)The relative expression of different sets of ISGs varies between PBMCs and whole blood sample types. (ii)Some reference genes used in published IFN-I assays are not stable. (iii)Some gene expression and serum protein assays reported to measure IFN-I include components that are either not ISGs, or are more responsive to IFN-II or other cytokines than IFN-I. Our future work will develop a whole blood IFN-I assay optimised to avoid these artefacts and confounders.

PO.3.65 THE LEPTIN AND ADIPONECTIN LEVELS IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS AND THEIR RELATIONSHIP WITH CARDIOVASCULAR RISK FACTORS

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Purpose To determine the leptin and adiponectin levels in women with systemic lupus erythematosus (SLE) and clarify the relationship of adipocytokines with cardiovascular risk factors.

Materials and Methods The study included 48 women with SLE (median age 40 [31;49] years, disease duration 3 [1;9] years), mostly with low and moderate activity (SLEDAI 2K index = 5[2;8]). The majority (83%) received glucocorticoids (GC) at the time of the examination, hydroxychloroquine was taken by 75%, immunosuppressants – by 21%, biological preparations – by 10% patients. The median daily GC dose in terms of prednisone was 10 [7.5; 10] mg/day. The control group included 35 women matched in age and body mass index (BMI) with SLE patients. The levels of adipocytokines (leptin and adiponectin) were assessed by ELISA. The following cardiovascular risk factors were studied: age, smoking status, BMI, waist circumference (WC), blood pressure (BP), insulin resistance (according to Homeostasis Model Assessment of Insulin Resistance (HOMA-IR) index), hypertriglyceridemia (according to the apolipoprotein B (ApoB) levels).

Results The leptin levels in SLE were 28.4 [9.4;71.6] ng/ml, and in the control group - 13.0[7.9;16.5] ng/ml ($p<0.001$), the adiponectin concentrations were 9.1[5.3;10.1] μ g/ml and 7.7[5.5;10.3] μ g/ml, respectively ($p=0.9$). Leptin levels correlated with BMI ($r=0.73$, $p<0.0001$), WC ($r=0.69$, $p<0.0001$), HOMA-IR ($r=0.57$, $p<0.001$), SLEDAI 2K ($r=-0.47$, $p<0.001$), SLICC damage index ($r=0.3$, $p=0.04$), duration of GC use ($r=0.3$, $p=0.04$). There were weak negative correlations of adiponectin levels with systolic BP ($r=-0.29$, $p=0.04$) and ApoB concentrations ($r=-0.31$, $p=0.03$). Relationships between adiponectin and BMI, SLE activity, and therapy were not found.

Conclusions In women with SLE, serum leptin levels were higher and adiponectin concentrations were similar to those in the control group. Leptin levels increased with decreased SLE activity, long-term GC use, and were associated with obesity