ABSTRACTS

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always imply malignancy. Immunosenscense is another cause of clonal lymphoid populations. Conclusions: This case demonstrates one of many causes of an elevated IgE in the absence of atopy or parasitic disease. A T-cell clone in the serum can be a rare cause of significant IgE elevation secondary to cytokine release that stimulates an increase in IgE producing plasma cells. Although there was no malignant clone identified on bone marrow biopsy initially, this patient will need further monitoring. It is important to recognize that both T-cell and B-cell malignancies have been identified in patients with unusually high levels of IgE in the absence of other etiologies and these rare diagnoses should be considered.

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IMMUNOLOGICAL PREDICTORS OF PROLONGED ILLNESS IN PATIENTS WITH INFECTIOUS MONONUCLEOSIS FROM MINSK, BELARUS.

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Background: Infectious mononucleosis (IM) is a widely distributed disease caused by Epstein-Barr virus, which is accompanied by excessive proliferation of cytotoxic T-cells. This study assess predictors of prolonged illness. Methods: 27 patients with acute IM, confirmed by blood and saliva PCR analysis, were selected for investigation. Relative and absolute counts of leukocyte subsets were assayed during acute disease and 3 months after discharge from the hospital. The following subsets were analyzed: $CD1c^+$ and $CD141^+$ myeloid DC, plasmacytoid DC, $CD14^+/CD16^+$ blood monocytes and monocytic (M-MDSC) and granulocytic ($CD15^+$ and $CD33^+$) G-MDSC, $CD4^+$ and $CD8^+$ T-cells, TCRγδ cells, exhausted T-cells ($PD\text{-}1^+$, $Tim\text{-}3^+$, $Lag\text{-}3^+$), Naïve, TCM, TEM-1\2 and TEMRA subsets, $CD28^+$ and $HLA\text{-}DR^+$ T-cells, T-regulatory T-cells including $CD39^+$ subset, B, B1-cells, B-memory cells. Logistic regression analysis was applied to determine predictors. ROC analysis was used to calculate sensitivity and specificity. Results**:** Prolonged illness was diagnosed in 12 of 27 patients with IM. Logistic regression analysis revealed 3 statistically significant predictors of prolonged illness: $CD3^+CD8^+$ T-cell count lower than 1,865 cells per ul (p=0.0013); $CD39^+$ T-regs count lower than 8.2 cells per ul (p=0.034); and $CD28^+$ T-cell counts lower than 1,415 cells per ul (p=0.003). In prolonged illness, patients with IM had decrease of both pro-inflammatory (CD3+CD8+, CD3+CD28+) and anti-inflammatory (CD39+ T-regs) subsets, while patients with robust increase of $CD8^+$ T-cells and T-regs at the onset of the disease tend to fast and complete recovery.The sensitivity and specificity of the predictors described in the prognosis of prolonged illness was calculated: $CD3^+CD8^+$ - 84.6% and 71.4%, CD39+ T-regs and CD28+ T-cells – 82.3% and 85.7% correspondingly. Conclusion: 3 predictors of prolonged illness in the patients with IM were found which may be used as a screening test to identify patients with high risk of prolonged illness.

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H_1 HISTAMINE RECEPTOR AGONISTS INFLUENCE PRODUCTION OF CYTOKINES, GROWTH FACTORS AND CHEMOKINES DIFFERENTLY IN PBMC AND DENDRITIC CELLS.

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Introduction: Histamine via activation of H_1 through H_4 receptors induces multiple immunological responses potentially impacting cytokines, growth factors and chemokines released by peripheral blood mononuclear cells (PBMC) and dendritic cells (DC). Methods: Peripheral blood was collected from healthy volunteers and isolated PBMC were cultivated within 48 h. DCs were derived from blood mononuclear cells in the presence of GM-CSF and IL4. PBMC and DC from 9 healthy donors were cultivated with the specific H_1 agonist (2-methylhistamine). The concentrations of cytokines, chemokines and growth factors (45-plex) in 48-hour supernatants of PBMC and DCs were assessed by Multiplex assays using Luminex xMAP technology. Results: In spontaneous PBMC and with activation of cells by H_1 agonist, secretion of all studied factors was detected. In contrast to PBMC, the secretion of IL-4, IL-9, IL-21 and IL-31 in DC's culture was not seen. The levels of production of LIF, IL-7, Eotaxin, MCP-1, GRO-alpha, IL-8, IL-17A, IL-18, IL-27 and IP-10 were higher in DC cultures compared to PBMC cultures ($P<0.05$). Activation of H_1R of PBMC induced marked increase in secretion of Eotaxin, RANTES, MIP-1 alpha, MIP-1 beta, GRO-alpha and IL-8 (2 to 3 fold) and secretion of IL-27 up to 30 fold (from 1.1±0.49 to 30.1±19.56 pg/ml, $p<0.05$). H_1R agonist actions in comparison to spontaneous DC cultures increased the secretion of SCF, GM-CSF, IL1-alpha, IL-5, Eotaxin, MCP-1, GRO-alpha, IL-8, IL-27, IL-10, IL-13, IL-17A, IL-18, γ-IFN and IL-27 ($P<0.05$). Conclusions: PBMC and DC derived from monocytes secrete cytokines, growth factors and chemokines with modulation by histamine H_1 receptors in PBMC and DC leading to different impact of regulation of mediator secretions by PBMC versus DC implying the these histamine receptors have immune-regulatory functions.

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DNA MICROARRAY-BASED EXPRESSION PROFILE OF NEUROTRANSMITTER RECEPTORS AND SECOND MESSENGERS BY PERIPHERAL BLOOD MONONUCLEAR LEUKOCYTES.

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Background: Peripheral blood mononuclear leukocytes (PBML) have e more than 50 different neurotransmitters receptors on their cell surfaces. Activation conditions and triggers of these receptors in PBML differ significantly from in nervous tissue. These receptors may serve as second messengers in patients with infectious and immune conditions. Methods: Using Human Discover Chips™ and Neurotransmitter Receptors and Regulators Arrayit Pathways™ Focused microarrays (Arrayit Corporation, California, USA) PBML gene expression profiling was performed. Overall expression profile for twelve PBML cDNA probes, synthesized from total RNA with direct (Invitrogen SuperScript™ Direct plus cDNA Labeling System) and indirect (Arrayit Amino Allyl Labeling Kit) synthesis protocols and both Alexa 555 and Alexa 647 dyes was done. Results: PBML had significant expression of calcium-associated ion channels and second messengers: chloride channel 1, calcium activated gene, calmodulin 1 gene, S100 calcium-binding protein A7 gene, vacuolar ATFase gene (presented in order of increasing level of expression). Slight expression of cholinergic receptor and nicotinic gene occurred compared with intense expression of gamma-aminobutyric acid (GABA) A receptor, alpha 2 gene. A stable gene expression pattern for cholinergic receptor, muscarinic 3, tachykinin receptor 2, and somatostatin receptor 3 was seen. Conclusions: Not only are muscarinic cholinergic receptors seen in PBML but also GABA A receptors. Tachykinin and somatostatin receptors play important roles cell metabolism; somatostatin receptor occur in lymphoid tumors. Wide neurotransmitters receptor expression may characterize enhanced regulation of leukocyte activity.

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HELICOBACTER PYLORI INFECTION PREVALENCE IN PATIENTS WITH ATOPIC DISEASES IN KIEV, UKRAINE.

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Background: Helicobacter Pylori (H. ylori) infections may be associated with development of urticarial. The relationships between H. pylori infections and atopic disease including risk of allergic disease are uncertain with both positive and negative association reported. To assess relationships between H. Pylori and atopy the rate of H. ylori infection in patients with verified allergic disease was assessed in this investigation. Method: There were 160 patients 5 to 45 years of age (average age 27.1±11.2) with allergic asthma, allergic rhinitis and atopic dermatitis assessed. Informed consent was obtained. All had allergy history, skin prick tests with inhalant allergens, allergen specific IgE testing for inhalants (ImmunoCAP, Phadia). 13C-Urea Breath Tests (13 C-UBT) were performed in all patients, including control subjects (70 healthy people, average age 30.3±12.3) to asses for active H. pylori infection. Results: In patients with proven allergic diseases, 47.7% had active H. Pylori infection versus,61.4% in the controls (< 0.05). In patients under 20 years of with proven allergy, H. pylori was found in 34.2% versus 52.8% (P< 0.01) in the control group. In allergic patients over 20 years old, 61.2% had H. pylori versus 70% in the control group (>0.05). Conclusion: There was no positive association seen between active H. Pylori infection and allergic disease in this investigation with a negative association seen in young atopic patient. This suggest that in young allergic individual H. pylori infection may decrease the occurrence of allergy perhaps similar to other infectious agents which have been shown to reduce the development of allergy especially in very young patients.