citometry for lymphocyte subpopulations: CD3+ 2590 mm³ (56%) CD4+ 1004 mm³ (42%), CD8+ 1267 mm³ (53%) CD16/56 171 mm³ (41%) CD19+ 1493 mm³ (35%). The patient was started on monthly intravenous gammaglobulin (IVIG) therapy. He was admitted in December 2008 with fever and severe abdominal pain; an exploratory laparotomy revealed a rectal-sigmoid tumor. The biopsy reported an atypical Burkitt lymphoma (Immunophenotype “B”: Bcl 2+, CD10+) with surgical margins negative for malignancy. Bone marrow aspirate and biopsy were negative for malignancy. In February 2009, management with chemotherapy was started with the diagnosis of Burkitt’s lymphoma stage III. Patient received 6 courses of chemotherapy with complete response to induction; for consolidation, 4 doses of rituximab were given. PCR amplification and direct automated sequencing by the Sanger method was performed in both genes known to be responsible for XLP in chromosome X.

**Results:** A hemizygous splice-site deletion in SAP was found, in intron 2: c.187_201+1delG, which deletes exon 2 splice donor site, and is predicted to result in the skipping of exon 2, and thus in a truncated, nonfunctional protein. XIAP was also sequenced and no mutation was found.

**Conclusions:** Final diagnosis: XLP. The patient is currently in the program for hematopoietic stem-cell transplantation.

**Background:** Primary immunodeficiencies (PID) are genetic diseases in which one or multiple components of the immune system, including cells (i.e. B cells, T cells, natural killer cells, phagocytes, complement components) or molecules (cytokines, chemokines, etc) are affected, leading to a low capacity to eliminate microorganisms and a high susceptibility to infection diseases. Most of the PID are multifactorial entities were the environmental and multiple genetic factor are involved. The single nucleotide polymorphisms (SNPs) analysis in case and control groups has been increasing the knowledge of the etiopathogenesis of several diseases and the opportunity to identify molecular markers useful in the clinical diagnosis.

**Methods:** We performed a case control study including 19 pediatric patients with IgE deficiency (5 U/mL), and 180 healthy controls. 25 SNPs distributed in the IL-4, IL-10, IL-5, IL-4, FCER1B, INFγ, GM-CSF, STAT3, GATA 3 and TIK-2 were analyzed. Genotyping was performed using sondas TaqMan. Hardy-Weinberg Equilibrium (HWE) and statistical significance were evaluated using FINETTI and STATICAL software.

**Results:** All genotypes, both in cases and controls were in HWE. We documented statistically significant differences in the distribution of the SNPs located in IL-4 (rs4986964, P = 0.018, OR = 14.74, IL-4R, rs18005010, P = 0.018, OR = 2.22, FCER1B, rs555917, P = 0.00001, OR = 16.9, GM-CSF, STAT3-1 and GATA-3 genes: GMFCS-130 (P = 4986964, OR = 0.22), STAT3 rs2293152 (P = 5.06 × 10⁻⁸, OR = 6.18), GATA-3 rs229360 (P = 0.005, OR = 13.52). The highest difference was found in the T allele of rs556917, which was more frequent in cases than controls (42.1 and 1.5%, respectively, P = 0.00001 OR = 16.907, 95% CI, 5.02-54.93). Interestingly, the C allele of 4986964 (IL-4) increased significantly in homozygote genotype (C: OR = 14.74, 95% CI, 2.38-91.234, OR = 0.018 to CC OR = 29.4, 95% CI, 1.154-749.32, P = 0.002).

**Conclusions:** Our results suggest that SNPs located in the genes involved in the IgE production are risk genetic factor to IgE immunodeficiency. Increasing of the sample size is currently to get solid conclusions.

**RESPIRATORY INFECTIONS**

**140 Inhibition of AKT Kinase Activity Decreases Replication of Human Respiratory Syncytial Virus**

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**Background:** Human Respiratory Syncytial Virus (RSV) is a leading cause of pediatric pulmonary disease and severe RSV infection predisposes to wheezing later in life. RSV infection has also been shown to be an environmental trigger for asthma. We are investigating whether targeting host factors important for RSV infection is a viable antiviral strategy. Lowering viral burden through these therapies will result in decreased severity of infection and may also prevent the occurrence of pathologic sequelae.

**Methods:** Inhibition of AKT by chemical inhibitors, siRNA, or dominant-negative mutants, was tested for activity against RSV replication in cultured cells. We examined the effect of viral protein expression on Akt activation and downstream signal transduction by Western blot and promoter assay. In addition, we examined the effect of Akt on specific viral processes (entry, macromolecular synthesis, and assembly) and proteins both in vitro and in RSV-infected cells, using kinase assays, Western blotting, and qRT-PCR.

**Results:** We found that AKT inhibition decreases RSV protein expression and viral titers. Expression of RSV NS2 protein activates AKT, leading to NFκB-dependent transcription, and inhibition of AKT blocks this effect. Activated AKT also phosphorylates RSV P protein at a specific site. Interestingly, AKT inhibitors that target the pleckstrin homology (PH) domain of AKT showed decreased efficacy against RSV compared to those that target AKT kinase activity.

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Conclusions: Inhibition of AKT can effectively decrease RSV replication in culture, likely by decreasing P phosphorylation and thus viral protein transcription and expression. Activation of AKT during RSV infection likely involves the NS2 protein and does not depend on the PH domain of AKT. AKT inhibitors have been found to be safe and efficacious in clinical trials for a number of different cancers; thus, AKT inhibition may be a potential therapeutic treatment for severe RSV infection.

141 Abnormal Immune Response Against Respiratory Pathogens in Olympic Athletes
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Background: Viruses and bacteria are important contributors to asthma exacerbations. Exercise at competitive level is believed to increase susceptibility to respiratory infections. The study aimed at investigation of the anti-infectious immune response in athletes in the context of exercise intensity, atopy and allergic diseases.

Methods: Questionnaire data were obtained from 219 Polish athletes (median age 26 years) preparing for Beijing Olympic Games during the multicenter study within the GA2LEN project (WP 2.8.2). Allergy Questionnaire for Athletes (AQUA) (Bonini et al 2009) was used to obtain data about symptoms and exercise pattern. Athletes were evaluated by allergist. Control group consisted of 77 healthy never-smokers (median age 29 years) not performing sport at competitive level. Serum IgG against parainfluenza virus 1,2 and 3 (PIV), respiratory syncytial virus (RSV), adenovirus and Mycoplasma pneumoniae were determined by ELISA.

Results: Percentage of athletes with positive serological testing was lower than percentage of HC in case of PIV (P < 0.0003), RSV (P = 0.01) and M. pneumoniae (P = 0.01). Analysis of IgG only in subjects with positive testing showed lower anti-PIV IgG levels in non-atopic athletes compared to HC (P < 0.001) and atopic athletes (P < 0.01) (median 66.0 vs 104.8 and 88.1 U/mL). In contrast, higher adenovirus IgG titres were found in atopic and non-atopic athletes as compared to HC (52.3 and 48.5 vs 36.6 EU, P < 0.001). Positive anti-PIV serology test was most frequent in athletes with allergic rhinitis compared to asthmatic and healthy athletes (78.3 vs 50.0 and 46.8%; P = 0.002). For PIV and M. pneumoniae the difference was also seen when atopic and non-atopic athletes were compared separately with HC. Positive RSV serology was more frequent in atopic versus non-atopic athletes (76.3 vs 60.8%, P = 0.03) and in HC versus non-atopic athletes (84.4 vs 60.8%, P = 0.001) but no significant difference between atopic athletes and HC was seen. Positive RSV serology was associated with atopy (OR 2.89; 95% CI, 1.34-6.23; P = 0.007). No differences were observed with regard to exercise pattern (endurance vs non-endurance).

Conclusions: Competitive sport at Olympic level may be associated with altered immune response against respiratory pathogens. For some agents this response may be affected by the atopic status.

142 The Immune Response Against Respiratory Pathogens in Patients with Chronic Rhinosinusitis/Nasal Polyps and Asthma with or without Sensitivity to Aspirin
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Background: Viral and bacterial infections can modulate the ongoing inflammation in both upper and lower airways of patients with chronic rhinosinusitis with nasal polyps (CRS/NP) and asthma. It was not clear if the protective immune response to pathogens may differ depending on the disease severity. Object: To compare serum IgG immune response against respiratory pathogens in patients with chronic airway disease (CRS/NP and asthma) with and without sensitivity to aspirin, and to refer the sensitization to severity of chronic rhinosinusitis.

Methods: We recruited 73 patients with CRS/NP and asthma (43 patients) and without (30 patients) hypersensitivity to aspirin. The extent of mucosal hypertrophy in paranasal sinuses was assessed by CT Scans and the sense of smell was evaluated with “sniffing smell” test. Serum IgG immunoglobulin levels against respiratory pathogens: Respiratory Syncytial Virus (RSV), Adenovirus (ADV), Parainfluenza virus (PIV) and Mycoplasma pneumoniae were determined by ELISA.

Results: Patients with ASA-hypersensitivity had history of significantly more nasal polypectomies (P = 0.002), lower smell test score (P = 0.03) and higher mean paranasal CT score (P = 0.03) as compared to ASA-tolerant patients, reflecting higher severity of the upper airway disease. The percentage of positive serological testing to respiratory pathogens was very high in the whole group of patients with CRS/NP and asthma (RSV, 95.8%; ADV, 95.9%; PIV, 84.9% and Mycoplasma pneumoniae, 100% patients) without any difference between ASA-sensitive and ASA-tolerant subjects. Patients with ASA-sensitivity had significantly lower concentrations of PIV-specific IgG (mean 188.67 ± 34.46 U/mL versus 207.56 ± 30.036 U/mL; P < 0.04) as compared to ASA-tolerant subjects. There was a significant trend (P < 0.048) for lower PIV-specific IgG concentrations with increased number of polypectomies. No correlation of IgG immunoglobulin concentrations for other pathogens with the number of polypectomies, paranasal sinuses CT score or presence of smell was observed.

Conclusions: Patients with CRS/NP and asthma had high frequency of IgG immunoglobulin against common respiratory pathogens. Serum IgG immune response to paramyxoviruses may be related to the recurrence of nasal polyps and the presence of aspirin sensitivity.

143 Immunologic and Clinical Characteristics of Pediatric Population with Human Influenza Virus H1N1 Infection in Federal territory of Mexico
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Mexico 2009 faced the H1N1VI influenza pandemic, a complex immunologic and clinical host response, whose defense mechanisms have yet to be identified. Lack of information on clinical and immunologic features in pediatric population with H1N1VI, delay detection of patients at risk of contracting it. This study aims to identify specific immunologic and/or clinical features of pediatric patients with H1N1VI in a federal Hospital in Mexico City.

Methods: Single-center, observational, non-experimental, prospective trial from September to October 2009, for pediatric patients arriving to Emergency room of Juarez Hospital, with suspicion of H1N1VI, needing to be younger than 17 years, and agree and sign the consent form by tutor. Samples obtained were peripheral blood, and pharyngeal exudate. From blood LS, Cytokine levels, and routine measurements (CBC, BCH) were investigated; the pharyngeal sample underwent PCR study to viral genetic material. Complementary studies such as arterial blood gases or Torax radiography were realized as needed.

Results: 32 patients participated. PCR results confirmed 18 cases (56%), 1 patient resulted positive for SII. The average age was 9 years old; 12 (67%) were female, and 6 (33%) were male. The mean amount of days from symptom onset to receiving medical attention was 2.5 days. Main symptoms and signs were fever, malaise, cough, rhinorrhea, and headache. Associated risk factors included malnutrition and tobacco exposure. It was demonstrated...