non-modified extract was 90.34 ± 75.57 U versus 76.19 ± 70.31 U against the allergoid ($P = 0.16$; Mann-Whitney). Linear regression coefficients obtained between immunoglobulin reactivity against both extracts were: $r^2 = 0.51$ for specific IgE and $r^2 = 0.83$ for specific IgG. An important decrease in the allergenic activity, measured by inhibition ELISA, was clearly observed. The MS/MS assay revealed the presence of the mayor allergen, and some isoforms, in non-modified and allergoid extracts.

Conclusions: Results obtained demonstrate that the glutaraldehyde polymerization process induces an important decrease in specific IgE binding to allergoids of *P. pratense* while there are no significant differences in specific IgG binding. The allergenic composition of the *P. pratense* allergoid was equivalent to the non-modified pollen extract.

IMMUNODEFICIENCY

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Anxiety and Depression in Patients With Variable Common Immunodeficiency in the Service of Allergy and Clinical Immunology - Centro Médico Nacional Siglo XXI

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Background: Depression and anxiety disorder are topics of interest, not only to psychiatrists. It comes in a 10 to 20% of cases, with the highest figures in people with chronic diseases. It has been shown that depressed patients have more mortality (not only attributable to suicide) than the general population. Depressive disorders in the community reach a lifetime prevalence of 15%. The average age of onset is situated close to 30 years, being similar in both sexes. The Variable Common Immunodeficiency (ICV) is a disorder characterized by low levels of immunoglobulins (Ig), these patients have an increased susceptibility to infection. The exact cause of low levels of serum Ig is not known and autoimmune diseases is complicated by up to 20%. It has a prevalence estimated at 1 in 25,000, is the most common primary immunodeficiencies, however, the diagnosis is not made until the third and fourth decade of life.

Objective: To evaluate the presence of anxiety disorders and depression in patients with ICV.

Methods: A cohort study, observational, cross-fifteen patients (11 female and 4 male) with ICV, aged between 17 and 71, diagnosed with ICV. Are individually applied assessment instruments and the preparation of tables and graphs. The data were expressed in absolute figures and percentages.

Results: 1) 13.3% had very severe, 6.6% had severe, 13.3% moderate and 66.6% mild depression. 2) 33.3% moderate-severe anxiety and 66.6% mild.

Conclusions: In this study, most patients are between the second and third decade of life, the moderate-severe anxiety was found in 5 patients and mild in 10 patients, a mild depression 10, a moderate 2, a severe 1 and 2 very severe. This allows to evaluate the ability of the patient with ICV to accept their illness and see the level of infection on the psychological, and offer a multidisciplinary therapy with counseling and/or psychiatric treatment for patients with moderate-severe anxiety and moderate depression to very severe and thus improve their quality of life. These patients have associated autoimmune disorders and family problems.

Sex		Age Groups					
Female	Male	<20	20–30	31–40	41–50	51–60	61–70
11	4	2	4	5	1	3	1

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Computed Tomography Findings Consistent With Rhinosinusitis, Clinical Correlation and Quality of Life in Patients With Common Variable Immunodeficiency. Original Article

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Background: Common Variable Immunodeficiency (CVID) is a clinical syndrome characterized by a reduction and/or absence of IgG, IgM and IgA to respiratory tract infections and/or gastrointestinal can be associated with lymphoproliferative and autoimmune processes. The infections found in paranasal sinuses are an important cause of morbidity and generate deterioration in the quality of life in this patient population. Multidetector Computed Tomography (MDCT) of the sinuses is the Gold standard for diagnosis of rhinosinusitis. The Rhinosinusitis disability index (RSDI) developed by Benninger and Senior, evaluates the quality of life in patients with nasal disease, including rhinosinusitis.

Methods: Fourteen patients were included with a definitive diagnosis of CVID according to the diagnostic criteria of the European Society for Immunodeficiencies in each of the patients were evaluated: (1) The diagnostic criteria according to the European Consensus on Rhinosinusitis and nasal polyposis (EPOS 2007) (2) MDCT of Sinuses. (3) Each patient answered the questionnaire of RSDI. Correlation was calculated using Spearman Ro (rs).

Results: Ten patients were female (71.4%) and 4 were male (28.5%). The average age was 34 years. In 8 patients (57%) received the diagnosis of rhinosinusitis. The maxillary sinus was affected in 5 patients find us (45%), followed by ethmoid sinus (36%), frontal sinus and sphenoid was affected in 9% of patients. The correlation between clinical symptoms and MDCT study was consistent with rhinosinusitis rs = 0.84. The correlation between the clinical diagnosis, CT and rhinosinusitis disability index was rs = 0.71. In 5 of the 14 patients studied showed no clinical symptoms of rinosinuistis, but in MDCT of the sinuses if they showed data compatible with the disease. Three of these patients showed bilateral location (69%) and in one patient the findings were found in 3 sinuses frontal, ethmoid and maxillary.

Conclusions: The sinus infection is a major cause of morbidity in patients with CVID. As in the initial study, should include a CT scan of paranasal sinuses for proper assessment and timely diagnosis.

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Case Report: Recurrent Mucocutaneous Candidiasis and Recurrent Diarrhea by Gram Negative Bacteria

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Background: Primary Immunodeficiencies (PID) are inherited disorders of immune system function that predispose affected individuals to increased rate and severity of infection, immune dysregulation with autoimmune disease, and malignancy.[1] In Peru there is a sub diagnosis and report of these diseases.

Methods: I present a case of a 7 month girl with recurrent mucocutaneous candidiasis and recurrent diarrhea by gram negative bacteria. Patient's current illness start at 3 days of age with macular anular lesions in skin and thrush, with poor response to topical antifungals and oral Itraconazole. Resolved with IV Amphotericin and then Posaconazole. Recurrence few days after treatment withdrawal. Culture of the lesions: Candida albicans. At 1 month of age she

starts with recurrent diarrhea. Stool culture: Escherichia coli, Klebsiella pneumoniae. Intermittent fever coincident with the worsening of diarrhea or thrush lesions. Sepsis in one opportunity. Poor weight gain. We requested some procedures.

Results: IgM (+) to CMV, positive viral load by PCR, asymptomatic, received ganciclovir. Chest CT: thymus with normal size. HIV: negative. Normal: WBC, glucose, creatinine, IgG, IgA, IgM, abdominal US, echocardiography. Flux cytometry (at 3 months of age): WBC = 13,040; Total lymphocytes = 4564; T CD4 = 1734; T CD8 = 1121; B cells = 913; NK cells = 574. GENETIC ANALYSIS: Gain-of-function human STAT1 mutation. Diagnosis: Chronic mucocutaneous candidiasis associated with STAT1 mutation.

Conclusions: Susceptibility to Candida sp has been described in combined immunodeficiency, phagocyte defects, or other immune defects resulting from mutations in AIRE, CARD9, dectin1, dectin2, NLRP3, STAT3 or MyD88.[2] As described in this case, the gain-of-function STAT1 mutation can also result in susceptibility to candida. There is a huge work to do in the field of PI in Peru. There has been until now a subdiagnosis and subreport of PI, but we have recently started working hard in purpose of giving affected patients a specific diagnosis and appropriate treatment.

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Bronchiectasis: Localization and Characteristics, Identified by Using a High Resolution CT Scan in Adults With Common Variable Immunodeficiency

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Background: The common variable Immunodeficiency (CVID) is the second cause of primary immunodeficiency. The bronchiectasis are the most frequent structural pulmonary alterations in CVID, which have been principally described in pediatric population, finding the presence of the same ones in 50% of the cases, nevertheless exists inssuficient information about the location and characteristics as type and distribution of the bronchiectasis; in adult population, less information exists still on this matter. High resolution CT scan is valuable for detection of bronchiectasis and may alter treatment of these patients.

Objective: The purpose of this study was to determine the presence of bronchiectasis, their characteristics and most frequent location using a high resolution CT scan in adults with diagnosis of CVID.

Methods: This was a cohort study whit 15 adult subjects whit the diagnosis of CVID, who underwent a chest high-resolution computed tomography scan, previous signature of a letter of informed consent and with the approval of the committee of ethics and investigation (F-2011-3601-21).

Results: We studied all the subjects (n = 15) whit CVID, finding the presence of bronquiectasias in 73% of the subjects with CVID, 82% was a women and 8% males. The most frequent location was in the left lung in 46% of the cases and 45 bilateral %, with only 9% of location in right lung. These were more frequent in the lower lobe in 42, 17% in top lobe and l6% diffuse, the rest of them were brought like diffuse, bibasal or parahiliar. In one patient we found the presence of a left apical cavitation and only one was brought by presence of pulmonary diffuse fibrosis.

Conclusions: There was realized a search of bronchiectasis and their characteristics in subjects with CVID disorders, the incidence of bronchiectasis is higher in our poblation (82%) than in the rest (50% described in other pubiclations). The most affected lung was the left in the lower lobe. The most frequent type of bronchiectasis was the cystic form.

IMMUNOMODULATORS

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Modulation of Human Basophilic Responses by a Fibroleukin-Allergen Fusion Protein

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Background: Fibroleukin or fibrinogen-like protein-2 is a immunomodulatory protein that was described to bind to Fcgamma-receptor-IIb and III. In the present study the effects of a fusion protein consisting of fibroleukin and the major allergen of shrimp, tropomyosin, on human basophilic responses were investigated in vitro.

Methods: The fusion molecule was generated by molecular cloning and expressed in *E. coli*. Receptor binding studies were performed by immunoblot, ELISA, and flow cytometry. Activation of basophils was studied by basophil activation test (BAT) with blood from shrimp allergic individuals.

Results: Tropomyosin and the C-terminal part of fibroleukin were fused by a short flexible linker consisting of the amino acids RADAAP. The fusion protein bound to the human Fcgamma-receptor-IIb in immunoblot and ELISA and binding of the fusion protein to human B-cells was shown by flow-cytometry. Shortening of the allergen into a peptide covering one-fifth of whole tropomyosin increased the binding to B-cells. Futhermore, a decrease in the activation of basophils to shrimp tropomyosin was observed in presence of the fusion protein.

Conclusions: Here we describe a novel fusion protein based on fibroleukin and shrimp tropomyosin that may have tolerizing effects on basophils and B-cells in shrimp allergic individuals.

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Immunogenicity and Safety Aspects of Adeno-Associated Virus–Like Particles (AAVLPS) as Carriers for B-Cell Vaccines

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Background: Adeno-associated viruses (AAV) are non-human pathogenic and replication defective ssDNA viruses. The surface of AAV consists of 60 capsomers, which can be exploited for high density display of recombinant peptides. AAV-like particles (AAVLP) can be generated via assembly of the recombinant capsid protein VP3. The aim of this study was to evaluate the uptake mechanism, immunogenicity and safety aspects of an AAVLP-displayed B-cell epitope, taking ovalbumin (OVA) as a model antigen/allergen.

Methods: An OVA derived linear B-cell epitope and for control purposes OVA-non related peptide TP18 (cholesterol-ester transfer protein 18) were inserted into capsid protein VP3 of AAVLPs.

Results: Life cell microscopy indicated that AAVLP internalized into HeLa epithelial cells and remained in intracellular vesicles up to 18 hours. When we immunized BALB/c subcutaneously, sera of AAVLP-OVA immunized mice showed similar titres of OVA-specific IgG1 compared to mice immunized with OVA protein. However, in OVA immunized mice high OVA-specific