

## 0745 | Lung infection, in particular with cytomegalovirus (CMV) is a risk factor for impairment of lung diffusion capacity in the survivors of childhood haematologic malignancies

Wasilewska E; Kuziemski K; Kaczorowska-Hac B; Niedoszytko M; Niedzwiecki M; Jassem E  
Medical University of Gdansk, Gdansk, Poland

**Background:** Children who were treated for leukemia are known to have developed long term impairment of lung function. The reasons that complication are only partially known. The aim of this study was to assess pulmonary function in children treated due to leukaemia in the past, and identify risk factors and clinical manifestations for the impairment of pulmonary function test (PFT).

**Method:** 74 survivors of childhood leukaemia: 46 treated with chemotherapy (HSCT-), 28 with chemotherapy and haematopoietic stem cell transplantation (HSCT+), 42 healthy subjects (control group CG) were evaluated. Spirometry and Diffusion Limit of Carbon Monoxide (DLCO) tests were performed in all subjects.

**Results:** The mean values of FEV1, FVC, FEV1/FVC were not significantly different in survivors vs CG. 47(66%) patients had reduced DLCO, 10(14%) restrictive, 5(7%) obstructive pattern. The mean values of the DLCO were lower in survivors than in CG ( $P < 0.03$ ), and in the HSCT+ than in the HSCT- group ( $P < 0.05$ ). The pulmonary infection increased the risk of diffusion impairment OR 5.1 CI (1.16-22.9)  $P = 0.019$ . DLCO was reduced in patients after CMV pneumonia ( $P < 0.001$ ). The main symptom of impaired lung diffusion was poor tolerance of exercise ( $P < 0.005$ ).

**Conclusion:** The lower DLCO is the most frequent abnormality in childhood leukemic survivors. HSCT and pulmonary infection (in particular CMV pneumonia) is a strong risk factor for impairment of DLCO in children. Clinical manifestation of DLCO impairment is poor exercise tolerance. A screening for respiratory abnormalities in survivors following treatment for childhood haematologic malignancies, seems to be of significant importance.

## 0746 | Phenotyping allergic respiratory diseases: An unsupervised classification using latent class analysis

Amaral R<sup>1</sup>; Pereira AM<sup>2</sup>; Araújo L<sup>3</sup>; Sá-Sousa A<sup>4</sup>; Jacinto T<sup>1</sup>; Almeida R<sup>4</sup>; Gonçalves I<sup>5</sup>; Couto M<sup>2</sup>; Delgado L<sup>3</sup>; Bosquet J<sup>6</sup>; Fonseca JA<sup>7</sup>

<sup>1</sup>CINTESIS, Center for Health Technology and Services Research, Faculty of Medicine, University of Porto, Portugal; Dept. of Cardiovascular and Respiratory Sciences, Porto Health School, Porto, Portugal, Porto, Portugal; <sup>2</sup>CINTESIS, Center for Health Technology and Services Research, Faculty of Medicine, University of Porto, Portugal; Dept. of Allergy, Instituto & Hospital CUF, Porto, Portugal, Porto, Portugal; <sup>3</sup>Basic & Clinical Immunology, Pathology Department, Faculdade de Medicina da Universidade do Porto, Porto, Portugal; Dept. of Allergy, Instituto & Hospital CUF, Porto, Portugal, Porto, Portugal; <sup>4</sup>CINTESIS, Center for Health Technology and Services Research, Faculty of Medicine, University of Porto, Portugal, Porto, Portugal; <sup>5</sup>Dept. of Allergy, Instituto & Hospital CUF, Porto, Portugal, Porto, Portugal; <sup>6</sup>MACVIA-France, Contre les MALadies Chroniques pour un Vieillessement Actif en France European Innovation Partnership on Active and Healthy Ageing Reference Site, Montpellier, France; INSERM U 1168, VIMA: Ageing and chronic diseases Epidemiological and public health approaches, Villejuif, Université Versailles St-Quentin-en-Yvelines; UMR-S 1168, Montigny le Bretonneux, France and Euforea, Brussels, Belgium., Montpellier, France; <sup>7</sup>CINTESIS, Center for Health Technology and Services Research, Faculty of Medicine, University of Porto, Portugal; MEDCIDS, Dept. of Community Medicine, Information, and Health Sciences: Faculty of Medicine, University of Porto, Portugal; Dept. of Allergy, Instituto & Hospital CUF, Porto, Portugal, Porto, Portugal

**Background:** The aims of this study were to identify distinct classes (phenotypes) of adults with allergic respiratory diseases, using an unsupervised method, and to examine their associations with inflammatory biomarkers, and allergic sensitization.

**Method:** Analysis of all adult participants (n = 728) in the Portuguese nationwide and cross-sectional study ICAR (Control and Burden of Asthma and Rhinitis-PTDC/SAU-SAP/119192/2010). The structured medical interview included data on respiratory symptoms, healthcare usage, and current medication. Measurements of blood eosinophils (B-Eos), serum IgE, fractional exhaled nitric oxide (FeNO) and skin prick test were performed (testing 6 groups of allergens: mites, dog and cat epitheliums, tree, grass and weed pollens mixtures and molds). Latent class analysis (LCA) was applied using 16 different clinical variables on upper/lower airways symptoms and activity limitations/impairment. Associations of LCA classes with biomarkers and sensitization were examined by multinomial logistic regression, adjusted for co-variables.

**Results:** A four-class model was obtained: Class 1—"Upper & lower airways symptoms with limitations" (UA&LawL) (n = 110;15%), Class 2—"Upper airways symptoms with impairment" (UAWI) (n = 135;19%), Class 3—"Upper symptoms without impairment" (UAsI) (n = 240;33%), and Class 4—"No/minimal symptoms" (n = 241;33%). Higher values of B-Eos, IgE, FeNO, and number of sensitizations were strong and positively associated with UA&LawL, when comparing to any other class. Distribution of the number of allergen groups in all sample and stratified by LCA classes is presented in table 1. Being sensitized to  $\geq 3$

allergen groups was significantly associated to UA<sub>W</sub> (aOR[95% CI]:2.1[1.3-3.6]), compared to UA<sub>S</sub>.

**Conclusion:** With an unsupervised cluster analysis, we identified four phenotypes of allergic respiratory diseases in the Portuguese general population, that are similar to clinical diagnosis. Being polysensitized to a high number of allergen groups was associated with multimorbidity (UA&LA<sub>W</sub>) and severity (UA<sub>W</sub> versus UA<sub>S</sub>), warranting further investigation. Moreover, the number of allergen sensitization groups may help differentiate between upper airways disease phenotypes.

	No sensitization	1-2 sensitizing allergen groups	≥3 sensitizing allergen groups
UA&LA <sub>W</sub> , n (%)	16 (14)	28 (26)	66 (60)
UA <sub>W</sub> , n (%)	46 (34)	24 (18)	65 (48)
UA <sub>S</sub> , n (%)	95 (40)	74 (31)	69 (29)
No/minimal symptoms, n (%)	134 (56)	54 (23)	51 (21)
Total, n (%)	291 (40)	180 (25)	251 (35)

#### 0747 | Knowledge of pharmacists about allergic rhinitis and its impact on asthma guidelines (aria guidelines): a comparative Brazilian/Paraguayan pilot survey

Urrutia-Pereira M<sup>1</sup>; Bittencourt R<sup>1</sup>; Fernandez C<sup>2</sup>; Cruz AA<sup>3</sup>; Simon L<sup>1</sup>; Rinelli P<sup>1</sup>; Solé D<sup>4</sup>

<sup>1</sup>Federal University of Pampa (Unipampa), Uruguiana, Brazil; <sup>2</sup>INMUNE CDE Clinic, Ciudad Del Este, Paraguay; <sup>3</sup>Federal University of Bahia, Salvador, Brazil; <sup>4</sup>Federal University of São Paulo, São Paulo, Brazil

**Background:** Allergic Rhinitis (AR) is one of the most common chronic diseases, and frequently not recognized by patients who do not seek medical attention. Pharmacists are generally the first to attend these patients. Allergic Rhinitis and its Impact on Asthma (ARIA) establishes evidence-based standards of best practice for the management of patients with AR and their comorbidities.

**Objective:** To evaluate and compare the level of knowledge about AR and recommendations of ARIA guidelines among pharmacists in Brazil (BR) and Paraguay (PY).

**Method:** 205 pharmacists (BR:78, PR:127) answered the self-applicable online questionnaire, (ARIA One Airways questionnaires \* questions about personal and professional data and knowledge about AR, and ARIA guidelines) using the Google Forms tool.

**Results:** 80.8% of BR and 49% of PY were women, median age was 32 years, 35% BR and 52% PY reported having more than four years of training. Although they recognized the main symptoms of AR, 26% BR and 100% PY never asked whether the patient had a medical diagnosis of AR; 20.5% BR and 100.0% PY did not ask whether the symptoms occurred when close to animals or allergens; 55% BR and 76% of PY did not ask if the patient had a medical

diagnosis of asthma; 59% BR and 70% PY did not ask if rhinitis worsens asthma symptoms and 51.3% BR and 84.3% PY did not ask whether symptoms of rhinitis interfere with their daily activities. Regarding treatment, 34.6% BR and 26.8% PY pharmacist still recommend first-generation antihistamines, 59% BR and 52% PY use nasal topical corticosteroids.

94.9% BR and 60.6% PY would refer the patient to a specialist but 85% BR and 100% PY are unaware of the ARIA Guidelines.

**Conclusion:** Although pharmacists are the first professionals sought by the AR patient for symptom relief their level of knowledge about AR and ARIA Guidelines is very low and do not follow best clinical recommendations. Training of these professional would allow the most appropriate advice for the patients they attend.

#### 0748 | Knowledge of primary care physicians about allergic rhinitis and its impact on asthma (aria guidelines): a comparative Brazilian/Paraguayan/Uruguayan pilot survey

Urrutia-Pereira M<sup>1</sup>; Fernandez C<sup>2</sup>; Rostán MRV<sup>3</sup>; Cruz AA<sup>4</sup>; Torres O<sup>1</sup>; Simon L<sup>1</sup>; Rinelli P<sup>1</sup>; Solé D<sup>5</sup>

<sup>1</sup>Federal University of Pampa (Unipampa), Uruguiana, Brazil; <sup>2</sup>INMUNE CDE Clinic, Ciudad Del Este, Paraguay; <sup>3</sup>Pereira Rossell Hospital, Montevideo, Uruguay; <sup>4</sup>Federal University of Bahia, Salvador, Brazil; <sup>5</sup>Federal University of São Paulo, São Paulo, Brazil

**Background:** Allergic Rhinitis (AR) is a high prevalence chronic disease, which starts in childhood and persists throughout life. It limits work productivity and causes absenteeism at school. Allergic Rhinitis and its Impact on Asthma (ARIA)\* establishes evidence-based standards of best practice for the management of patients with AR and its comorbidities.

**Objective:** To evaluate and compare the level of knowledge about AR and recommendations of ARIA guide among Primary Care Physicians (PCP) in Brazil (BR), Paraguay (PY) and Uruguay (UY).

**Method:** 336 PCP (BR: 109, PY: 127, UY: 100) answered the self-applicable online questionnaire (ARIA One Airways questionnaires) with questions about personal and professional data and knowledge about AR, and the ARIA guideline using the Google Forms tool.

**Results:** There was a predominance of female (BR: 73%, PY 50.4%, UY: 70%) median age 31 years old, 124/235 worked in the community and 75/127 in the emergency departments, 34% of the BR had more than 10 years of education, 67% from PY had between 1 and 5 years, and 82% from UY had been graduated for less than 1 year. BR/UY recognize the main symptoms of AR, however 67% of those from Uy do not ask: if the patient has physician diagnosis of AR, 72% present shortness of breath, and 93% a medical diagnosis of asthma, 94% if rhinitis worsens asthma symptoms and 90% if symptoms of rhinitis interfere with the patient's daily activities. The prescribed treatment varied a lot, the intranasal corticosteroid use rate was: BD: 78%, PD: 92% and UD: 54%.