**425. Work, the environment and respiratory disease**

**P4189**
Genetic risk factors for meat wrapper’s asthma
Olga Vasilyeva, Elena Kulemina, Marya Kolyaskina. Occupational Lung Diseases Department, Pulmonology Research Institute, Moscow, Russian Federation

The fumes of polyvinylchloride (PVC) wrap cause respiratory difficulties and meat wrapper’s asthma. The pathophysiological mechanism for this malady is not clearly understood. Antioxidant enzymes constitute the endogens defence from toxic products. The M and T classes of glutathione S-transferase play the important role in the response to oxidative stress in the lung.

This study
Aims: To investigate GSTM1 and GSTT- polymorphism in association with bronchial responsiveness and development of asthma in meat wrappers (MW).

Methods: 45 MW and 77 workers of another trades in meat processing and packing factory, both male and female, mean age 40.1 yrs were examined at the workplace. Respiratory symptoms were recorded on a questionnaire. Lung function tests and peak expiratory flow (PEF) were performed during the shift and out of the work. Blood was collected to determine GSTM1 and GSTT genotypes (PCR).

Results: Airway hyperresponsiveness (AH) and asthma symptoms were recorded in 18 out of 45 (40%) MW after the exposure to PVC fumes, as compared to other workers (19 of 77, 15.6%) p < 0.002. The high prevalence of GSTM1 and GSTT – null genotypes were noticed in 35.5% and 11.8% MW respectively. 7.9% of MW had both deletion of GSTM1 and GSTT. The deletion of the entire genes and absence of the enzymes were associated positively with decreases in FEV1 and PEF (r = 0.67; 0.78) and varied according to the length of service.

Conclusion: Our data suggest that the GSTM1 and GSTT – null genotypes are associated with the higher susceptibility to PVC-induced AH and development of asthma.

**P4190**
Upper airways irritation syndrome (UAIS) and loss of pulmonary function at the workers exposed to cotton dust
Micaela Margineanu, Felicia Gradinaru, Eugenia Danulescu, Madalina Ipate. Occupational Medicine, National Public Health Institute Bucuresti- Public Health Regional Center Iasi, Iasi, Romania

Aim: To specify correlations between UAIS and loss of pulmonary function versus occupational risk, in workers from a small company that processes cotton.

Material and methods: We are investigated 45 workers aged 29-63 years and various length of service (more than 10 years) by two cross-sectional surveys at 5 years interval versus a matched-control group; The percentage of smokers was low (9%). A questionnaire was completed, clinical examinations and pulmonary function test (PFT) were performed for each worker.

Results: In the 1st exam the UAIS was diagnosed in only 8,8% of the exposed group. PFT has been modified to only one of the exposed workers. In the second stage of the study, UAIS was more frequent, having a prevalence of 44% to exposed group, with these clinical aspects: laryngeal irritation (66%), frequent harsenes and dry cough (55%), nasopharyngeal irritation (47%).

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sneezing (38%) and allergic diseases (18%). The prevalence of the respiratory symptoms was higher among the exposed subjects (p<0.005). The pulmonary function test (PFT) put in evidence a distal obstructive syndrome (DOS) in 26% of the exposed workers (versus 3% at control group: p<0.0002). We found significant increase of obstructive dysfunctions associated with length of service. The mean values of the FEV1/FVC report and the PEF values are significantly less at the cotton area vs (24.62 ± 9.5) vs (29.18 ± 9.3) in the control group: (p<0.0001). The shuttle walking test (ST) is used to assess functional capacity in individuals with pulmonary diseases. Its use in healthy workers may be useful to evaluate exercise capacity. The practice of burning the sugar cane field in the night before harvest is common, and emits large amounts of pollutants. Aims: To evaluate the exercise capacity in a group of the burning sugar cane workers and a control group, during harvest and non-harvesting periods. Methods: 112 sugar cane workers and 107 controls, young man, non-smokers were submitted to ST 2 periods. At the beginning and end of the test, heart rate (HR), respiratory frequency, blood pressure, SpO2 Borg scale were measured and the walking distance recorded. Data were analyzed and compared using t-test or Mann-Whitney Test. Results: Mean ± SD of the body mass index (BMI) kg/m² and the HR were higher (p<0.001) in the control group: (29.1±6.4) vs (25.4±2.5) years; BMI: (29.3±6.4) vs (24.6±5.2); and HR: (98.4±16.9) bpm, respectively. The median walking distance by the two groups at the end of the test was 1380 (IQR:290) meters, 25% of the controls and 75% of cutters. In the period of harvest the sugar cane workers presented significant increase in (p<0.0001), diastolic blood pressure at the end of the exercise. No significant alterations in SpO2 between groups and periods were found. Conclusions: We demonstrated that sugarcane workers (SW) have better physical performance and exercise capacity than control subjects, although showed an elevation in diastolic blood pressure in ST, as observed in a previous study by our group. Support by Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)/Brazil.

Use of shuttle test on a group of healthy sugar cane workers, Sao Paulo, Brazil

Rooseane Caldeira, Ana Maria Cartaço, André Luis Albuquerque, Gustavo Prado, Dirce ZáFilho, Mário Terra-Filho, Ubiratan Santos. Department of Medicine and Physiotherapy, Unified Faculties of the Northern Minas- Funorte, Montes Claros, Minas Gerais, Brazil

Aim: To evaluate the prevalence of respiratory symptoms in 7154 state road transport workers and a control group, during harvest and non-harvesting periods. Methods: 112 sugar cane workers and 107 controls, young man, non-smokers were submitted to ST 2 periods. At the beginning and end of the test, heart rate (HR), respiratory frequency, blood pressure, SpO2 Borg score were measured and the walking distance recorded. Data were analyzed and compared using t-test or Mann-Whitney Test. Results: Mean ± SD of the body mass index (BMI) kg/m² and the HR were higher (p<0.001) in the control group: (29.1±6.4) vs (25.4±2.5) years; BMI: (29.3±6.4) vs (24.6±5.2); and HR: (98.4±16.9) bpm, respectively. The median walking distance by the two groups at the end of the test was 1380 (IQR:290) meters, 25% of the controls and 75% of cutters. In the period of harvest the sugar cane workers presented significant increase in (p<0.0001), diastolic blood pressure at the end of the exercise. No significant alterations in SpO2 between groups and periods were found. Conclusions: We demonstrated that sugarcane workers (SW) have better physical performance and exercise capacity than control subjects, although showed an elevation in diastolic blood pressure in ST, as observed in a previous study by our group. Support by Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)/Brazil.

Evaluation of cardiopulmonary dysfunctions and oxidative stress in sugarcane workers compared to a control population exposed to outdoor biomass air pollution

Gustavo Prado1, Ubiratan Santos1, Mário Terra-Filho1, Dirce Zanetta2, Renato Pacheli3. Pulmonary Division, Heart Institute (Incor) - University of São Paulo Medical School, Sao Paulo, Brazil. 1Pulmonary Division, Heart Institute (Incor) - University of São Paulo Medical School, Sao Paulo, Brazil. 2Department of Epidemiology, School of Public Health - University of Sao Paulo, Sao Paulo, Brazil. 3School of Nursing, Sao Jose do Rio Preto School of Medicine, Sao Jose do Rio Preto, Brazil

Use of shuttle test on a group of healthy sugar cane workers, Sao Paulo, Brazil

Rooseane Caldeira, Ana Maria Cartaço, André Luis Albuquerque, Gustavo Prado, Dirce ZáFilho, Mário Terra-Filho, Ubiratan Santos. Department of Medicine and Physiotherapy, Unified Faculties of the Northern Minas- Funorte, Montes Claros, Minas Gerais, Brazil

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procedure in the study area. All cases and controls were interviewed in a face to face interview in order to fill in standardised questionnaires on risk factors of lung cancer. Occupational exposures were assessed using both a lifestyle list of all jobs held for at least one month, specific questionnaires of industrial activities and job-tasks questionnaire. Qualitative and quantitative occupational exposure indices were then calculated. AF and CI95% were computed for each occupational exposure index and globally for all significant occupational exposures.

**Results:** 219 cases and 520 controls were included in this study. After adjustment on age, smoking duration, time since quitting smoking, a significant dose-response relationships were found with log of cumulative exposure per unit for asbestos (OR: 1.175, p=0.003), silica (OR: 1.109, p=0.001) and Polycyclic Aromatic Hydrocarbons (OR: 1.175, p=0.001). AF were ranged between 38% (CI95%: 27-48) and 57% (CI95%: 42-68) according to different models, for these three agents or their association.

**Conclusion:** According to very high AF observed in this study, these results strongly suggest to include occupational risk factors in definition of populations at high risk of lung cancer for the secondary prevention of lung cancer.

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**P4196**

Feather duvet and idiopathic pulmonary fibrosis

Ferran Morell, Ana Villar, Maria-Jesus Cruz, M Angeles Montero, Xavier Muñoz, Respiratory, Hospital Vall d’Hebron, Barcelona, Spain; Pathology, Hospital Vall d’Hebron, Barcelona, Spain

**Introduction:** Up to 5% to 10% of cases of idiopathic pulmonary fibrosis (IPF) may be secondary to hypersensitivity pneumonitis (HP). The hypothesis of this study is that exposure to a feather-filled duvet or pillow can be a cause of pulmonary fibrosis that is erroneously diagnosed as IPF. 

**Methods:** Between 2004 and 2010, 318 consecutive patients were studied. The diagnosis was based on internationally established criteria. Emphasis was placed on detecting transitory exposure to a possible environmental agent, particularly the use of a feather duvet or pillow. Furthermore, in patients whose questionn revealed exposure to an uncommon causal antigen or low-intensity exposure, specific IgG to antigen was determined, and specific bronchial challenge (SBC) were carried out. Surgical lung biopsies (SLB) were reviewed.

**Results:** We studied 318 patients with ILD (57 FPI, 92 NH, 45 Sarcoidosis). BAL studies of BAL fluid were performed. There were 48 patients with previous contact with a feather duvet or pillow for at least one year. In 15 patients the final diagnosis was HP; 8 by SBC and 2 by characteristic pathologic findings. HP was diagnosed in 3 patients with atypical usual interstitial pneumonia in SLB+ positive IgG testing and in 2 patients with bronchoalveolar lavage lymphocytosis (>20%) and positive specific IgG to the causal agent. In 36 patients without previous contact, HP was diagnosed in 8 patients.

**Conclusion:** In IPF, thorough clinical questioning can reveal the existence of a low-intensity, but persistent exposure to a known causal agent. HP due to exposure to a feather duvet can be the cause of some cases of pulmonary fibrosis, a condition that can have different prognosis.

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**P4197**

The value of lymphocytosis in bronchoalveolar lavage in the differential diagnosis between idiopathic pulmonary fibrosis and chronic hypersensitivity pneumonitis

Ana Villar, Ferran Morell, Javier de Gracia, Mario Culebras. Pulmonology, Hospital Vall d’Hebron, Barcelona, Spain

**Introduction:** Bronchoalveolar lavage (BAL) is a minimally invasive, well-tolerated bronchoscopy procedure which plays an important role in the diagnosis of interstitial lung disease (ILD). We assessed the value of lymphocytosis in BAL fluid for the differential diagnosis.

**Material and methods:** Prospective study of all the 318 patients with ILD through 2004-2010. During the diagnostic process, cytological and immuno-histochemistry studies of BAL fluid were performed.

**Results:** We studied 318 patients with ILD (57 FPI, 92 NH, 45 Sarcoidosis). BAL was performed in 230 patients (72%), obtaining median lymphocyte percentages in IPF of 8%, 20% and 25% in IPF, HP and Sarcoidosis respectively. Lymphocyte counts were >60% in non IPF patients, 5% of HP and in 2% of Sarcoidosis patients; were >30% in non IPF, 18% HP and 29% Sarcoidosis, and >20% in 5% IPF, 32% HP and 33% Sarcoidosis.

In a study focused exclusively on chronic NH occurring with IPF criteria (ATS/ERS criteria) (n=60), three presented lymphocytosis >20% but were ultimately diagnosed with HP. Lymphocytosis >15% was found in 5/11 (45%) IPF and 3/3 (100%) of patients with final diagnoses HP. Lymphocytosis between 10-15% was present in 8/14 (57%) IPF and 6/14 (43%) HP. No significant differences were found in the cellular profile between IPF and HP.

**Conclusions:** Lymphocytosis >20% is also a characteristic of HP and Sarcoidosis, since it is very rarely found in IPF (5% in our series). In chronic HP the absence of lymphocytosis in BAL >20% does not rule out the diagnosis (35% diagnosed with actually HP). This abstract is funded in part by Fis P1001577

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**P4198**

The relation between air pollution and respiratory tract diseases by months in Duzece City of Turkey

Ege Gulec Balbay, Oner Balbay, Peri Arbak, Ali Nihat Annakkaya, Dept. of Chest Diseases, Duzece Ataturk State Hospital, Duzece, Turkey; Dept. of Chest Diseases, Duzece University School of Medicine, Duzece, Turkey

**Aim:** To investigate the relationship between levels of particulate matter (PM10) and sulphur dioxide (SO2) and the patients with COPD, asthma, respiratory tract infection (respiratory tract disease-RTD) applied to polyclinics in the central part and counties of Duzece.

**Material:** Between 1 January 2009 and 31 December 2009 in Duzece Ataturk State Hospital, the patients diagnosed as RTD at chest, internal medicine, ENT, pediatric polyclinics were retrospectively evaluated. The monthly average values of SO2 and PM10 obtained from the official data of Ministry of Environment and Forests. **Results:** 53.1% of 29,367 cases were female. 64.4% of cases were adults. The average SO2 and PM10 concentration was highest in November, December, January and those were the lowest in July, August, September and October. Acute bronchitis were higher than the remaining in January (26.9%) and December (25.5%), while those were the lowest in January (20.6%), respectively. COPD were more frequent in January (10%), February (9.0%), March (13.1%), but less in September (5.9%). Asthma were most admitted in December (10.6%), January (9.6%) but less frequently in September (6.1%). Pneumonia were frequently admitted in November (10.6%), January (9.6%). The allergic rhinitis was the most common at the seaside (119/479, 24.8%) (p=0.000). Upper RTD (58%) were higher than the lower RTD in the months that the air pollution was the highest (p=0.000).

**Conclusion:** It was speculated that polyclinics admissions of COPD, asthma, acute bronchitis, pneumonia seem to be associated with air pollution and also living in the seaside may lead to more increase in applications regarding allergic rhinitis.

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**P4199**

Influence of high values of air pollutants on number of asthma exacerbations in children from Pancevo in years 2009 and 2010

Stansia Baumann, Slobodan Prodanovic, Stefan Bauermann, Magdalena Chirica, Mirjana Dejanovic, Milica Tanaskovic, Children’s Department, General Hospital Pancevo, Pancevo, Serbia; Medical School, University of Belgrade, Belgrade, Serbia; Children’s Health Center, Helath Center Pancevo, Pancevo, Serbia; Occupational Medicine, Public Health, Pancevo, Serbia

**Introduction:** Air pollution is well known for it’s influence on development of asthma. Children with asthma are specially vulnerable on high levels of air pollutants.

**Aim:** To show that elevated air pollution (tar, SO2, NO2, TSP, NH3, and benzene) had significant influence on acute exacerbations of asthma.

**Method and results:** We have monitored daily concentrations of tar, SO2, NO2, TSP, NH3 and benzene in city of Pancevo in October, November, December, January and February and number of children who visited pediatrician due to acute asthma exacerbation. We have excluded other months to avoid influence of higher levels of pollen. We have observed that during periods with high peaks of tar, TSP and benzene, larger number of children had acute asthma exacerbation and visited pediatrician. SO2, NO2 and NH3 were within legally permitted range.

Results have shown that in year 2009 in January, February, November, December tar, TSP and benzene were above permitted values 73 days and in December 176 days had asthma exacerbation. In the same period in 2010 the same air pollutants were 44 days above permitted values and 939 children had asthma exacerbation. During periods with air pollution below permitted values in 2009, 1331 children had asthma exacerbation in 78 days, and in 2010, 1508 in 107 days. This difference is statistically significant, which was confirmed by χ2 test, for year 2009 χ2 = 3.987, and for 2010 χ2 = 4.91, p< 0.05.

**Conclusion:** High concentrations of tar, TSP and Benzene have significant influence on larger number of asthma exacerbations in children, specially during periods of oversteping legally permitted concentrations.

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**P4200**

The relationship of air pollution and surrogate markers of endothelial dysfunction in a population-based sample of children

Mohamadreza Modaresi, Perinaz Poursafa, Roya Kelishadi, S.H. Javanmard, Pediatrics Department, Children’s Medical Center, Tehran, Islamic Republic of Iran Cardiac Research Center, Isfahan University of Medical Sciences, Isfahan, Islamic Republic of Iran Cardiac Research Center, Isfahan University of Medical Sciences, Isfahan, Islamic Republic of Iran Cardiac Research Center, Isfahan University of Medical Sciences, Isfahan, Islamic Republic of Iran

**Background:** This study aimed to assess the relationship of air pollution and plasma surrogate markers of endothelial dysfunction in the pediatric age group.

**Methods:** This cross-sectional study was conducted in 2009-2010 among 125 participants aged 10-18 years. They were randomly selected from different areas of Isfahan city, the second largest and air-polluted city in Iran. The association of air pollutants’ levels with serum thrombomodulin (TM) and tissue factor (TF) was determined after adjustment for age, gender, anthropometric measures, dietary and physical activity habits.
Results: Data of 118 participants was complete and was analyzed. The mean age was 12.79 (2.35) years. The mean pollution standards index (PSI) value was at moderate level, the mean particular matter measuring up to 10 mum (PM10) was more than twice the normal level. Multiple linear regression analysis showed that TF had significant relationship with all air pollutants except carbon monoxide, and TM had significant inverse relationship with ozone. The odds ratio of elevated TF was around 2 higher in the upper vs. the lowest quartiles of PM10, ozone and PSI. The corresponding figures were in opposite direction for TM.

Conclusions: The relationship of air pollutants with endothelial dysfunction and pro-coagulant state can be an important factor in the development of alterations observed in early life. This finding should be confirmed in future longitudinal studies. Concerns about the harmful effects of air pollution on children’s health should be considered a top priority for public health policy; it should be underscored in primordial and primary prevention of chronic diseases.

P4201 Prediction of the acute mountain sickness using SaO2 indices at rest and exercise in hypoxic conditions
Akşay Kaya1, Dursun Aykut1,2, High Altitude Medicine, National Centre of Cardiology and Internal Medicine, Bishkek, Kyrgyzstan

The aim of the study was to compare the oxygen saturation at rest and exercise during the simulated high altitude ascent in subjects who had suffered from acute mountain sickness (AMS) as well as healthy subjects. Ninety seven subjects were divided into three groups depending on the Lake Louise score during the previous stays at high altitude (3800 m above sea level). The 1st, control, group consisted of 62 people without AMS symptoms; the 2nd group included 18 patients with mild AMS (3-4 points in LL score) and 17 subjects with moderate to severe AMS made the 3rd group (5 or more points in LL score). SaO2 indices were taken at rest and after 5 minute of strenuous bicycle test both at normoxia (760 m) and inside the hypobaric chamber (4500 m above sea level, 30 minutes).

Results: It was revealed that rest oxygen desaturation rate was significantly higher in the 2nd and 3rd group compared with the 1st, control, group (rest SaO2 – 16.0±6.5%, and 16.5±7% compared with 14.2%, p<0.05) while the exercise oxygen desaturation rate was significantly higher in the 3rd group compared with 1st and 2nd group exercise SaO2 – 24.7±8.8% compared with 18.5±4.8% and 21.7%, p<0.05).

Conclusion: Both rest and exercise indices of oxygen saturation during the simulated ascent to high altitude may be used as prediction markers for acute mountain sickness.

P4202 Airborne particulate matter (PM10) decreases respiratory activity in mitochondria isolated from lung tissue
Nora Ezzat1,2,3,4, Melva. De Aguirre-Huamani1, Verónica Freyre-Fonseca1, Claudia María García-Cuélgar2, Yesenia Sánchez-Pérez2, Yolanda I. Chirino1. 1Unidad de Biomedicina, Facultad de Estudios Superiores Iztacalco, Estado de México, Mexico; 2Subdirección de Investigación Básica, Instituto Nacional de Cancerología, Mexico City, Mexico

Airborne particulate matter (PM10) has potential adverse health effects in human, especially in lung tissue and those effects are related to an increase in several dis-eases and cancer. We have previously demonstrated that PM10 increases reactive oxygen species (ROS) formation, decrease in antioxidant enzymes activity and those effects are related under sub-lethal conditions. In this regard, mitochondria are the main source of ROS but little is known about alterations induced in mito-chondrial function after PM10 exposure. We hypothesized that if PM10 induces an increase in ROS generation, it could be possible to find alterations mitochondrial function. To test our hypothesis we exposed enriched mitochondria preparations from lung tissue of rat for 1 hour to the following PM10 concentrations: 1, 5, 10, 30 and 50 μg/mL. We measured the oxygen consumption after PM10 exposure using a Clark type electrode and also the activity of mitochondrial complexes. In addition, the mitochondrial membrane potential was determined by rhodamine 123 staining using confocal microscopy. Our results showed a decrease in the respiratory control index and ADP phosphorylation over 50%, a decrease in the activity of complex IV and an important decrease in mitochondrial membrane potential. In conclusion, PM10 induces a decrease in oxygen consumption, ADP phosphorylation and loss of mitochondrial membrane potential. These effects are related to the decrease in activity of complex IV. Our research will be guided to investigate if the mitochondrial alterations induced by PM10 exposure could be related to mitochondrial dysfunction and metabolic alterations found in cancer cells.

P4203 Prevalence of asthma and allergy symptoms and pulmonary function testing in sugar cane and tobacco field workers in Honduras
Joba M. Kster1,2,3, R. Minnesota, High Risk Center for Childhood Asthma and Allergy, Indiana University School of Medicine, Indianapolis, IN, United States

We previously demonstrated a very high prevalence of wheezing (89%) and lower pulmonary function tests (PFT) in rural Honduran children of the Rio Grande O Choluteca valley where sugar cane is burned 8 months of the year compared to children of Jamastran valley (17% wheezing) where no crops are burned. We applied a similar asthma/allergy questionnaire and performed PFT on sugar cane field workers (SC) of the Rio Grande O Choluteca valley and tobacco field workers (TOB) of the Jamastran valley. Tables 1 & 2 summarize questionnaire findings and PFT values of the two groups.

Table 1. Questionnaire findings

<table>
<thead>
<tr>
<th>Type Worker</th>
<th>Age (yrs)</th>
<th>Years Worked</th>
<th>Ever</th>
<th>Where</th>
<th>Where 12 mos</th>
<th>Night</th>
<th>Chronic</th>
<th>Itchy</th>
<th>Eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC (n=50)</td>
<td>24±4.8</td>
<td>5.4±5.1</td>
<td>38%</td>
<td>26%</td>
<td>68%</td>
<td>52%</td>
<td>40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOB (n=58)</td>
<td>51±12.4</td>
<td>13.6±10.1</td>
<td>49%</td>
<td>31%</td>
<td>61%</td>
<td>41%</td>
<td>50%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results:

We found the SC workers to be significantly younger than those fever years working in the fields compared to the TOB workers. Both groups were found to have similarly high prevalence of asthma wheezing in last 12 months, night cough, smoking frequency, chronic rhinitis and conjunctivitis. SC workers have significantly lower FVC and FEV1. We conclude that both SC and TOB field workers in Honduras have a high prevalence of asthma and allergy symptoms and SC workers, although younger with fewer years of exposure, have lower pulmonary function. Individual air quality sampling of the two groups is needed to delineate the contribution of environmental work exposure to these findings.

P4204 Asthma and allergy to laboratory animals in university employees: Need for prophylaxis
Erica Ferraz1,2, Lúcia Karla Arruda1,3, Marcos C. Borges1, Satoshi Kitamura1, Ericson Bagatini2, Elcio Oliveira Vianna1. 1Department of Medicine, Medical School of Ribeirão Preto, University of S. Paulo, Ribeirão Preto, S. Paulo, Brazil; 2Area of Occupational Health, State University of Campinas, Campinas, S. Paulo, Brazil

Introduction: Subjects exposed to laboratory animals are at high risk of developing respiratory and allergic diseases. The reported prevalence of occupational asthma ranges from 1.4 to 9.5%, and occupational rhinitis from 2.9 to 18.3% (reviewed by Foletti, I. et al. Allergy 2008; 63:834-41). In the moment, few studies have looked at programs to prevent these diseases.

Objectives: To assess the prevalence of asthma and atopic sensitization to common allergens, and to evaluate the employment of prophylactic measures in two Brazilian universities.

Methods: Subjects exposed to laboratory animals in two Brazilian universities (University of S. Paulo and State University of Campinas) answered to specific questionnaires to assess work conditions, underwent spirometry, bronchial provocation with mannitol, and skin prick tests to eleven common allergens and five food-related allergens (rat, mouse, guinea pig, hamster, and rabbit).

Results: Eighty-five subjects (38±11 years old, 59 men) were evaluated. Forty-four (51.8%) subjects were sensitized to at least 1 common allergen, and nine (10.6%) were sensitized to at least 1 work-related allergen. Twelve subjects (14%) presented hyperresponsiveness to mannitol. Personal protective equipments were available at work for 98%; however, 51% did not wear mask all the time when in contact with animals. Twenty-six percent of subjects received formal orientation about the risk assessment and hazard recognition related to laboratory animal allergy.

Conclusion: In this ongoing study, prevalence was relevant to support prophylactic measures. These measures need reinforcement.

P4205 COPD and exposure to smoke biomass in non-smokers women in a semi-rural region of Tunisia
Nada Rahmanoun1, Ines Zendah, Bthiel Khouaja, Leila Bayahi, Amel Khabtar, Habib Ghedira. Pulmonary Department L, Abderrahmen Mami Hospital, Ariana, Tunisia

Many studies have suggested that biomass smoke is a risk factor for COPD and this study is conducted to compare, in non-smokers housewives, the prevalence of COPD symptoms and airway obstruction as related to biomass exposure.

Methods: From April to October 2010, 243 women over 30 years-old were randomly selected from a municipal list of the semi-rural city of Kasserine in Tunisia. Among the 140 non smokers women who consent to be explored, 81 (58%) are exposed to smoke biomass from traditional wood cooking (n=47) or traditional field works (n=34). The remaining 59 women (32%) were exposed to wood burning in rural houses.

Results:

Age of exposed and non exposed housewives did not differ (48±12 years old vs 48±14 years old) but exposed women had lower education level (p<0.05) with higher jobless rate (73% vs 32%; p<0.05). Respiratory COPD-771s

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related symptoms were more frequent in exposed women either Cough (81% vs 19%; p<0.01) or Dyspnea (76% vs 24%; p<0.01). An FEV1/FEV6 of less than 70% considered as diagnostic of an obstructive disease, was more prevalent in exposed group (23.53% vs 4.16%; p<0.001).

Conclusion: COPD-related symptoms and airway obstruction are significantly more prevalent in non smokers women, from semi rural area in Tunisia, exposed to biomass smoke from traditional wood cooking or traditional coal house heating.

P4206
Snoring and obstructive sleep apnea among former World Trade Center (WTC) rescue workers and volunteers
Rafael de la Hor 1, Jorge Mailec 2, Sasha Kramer 1, Bienenfeld Laura 1, Aurora Rashmi 1, 2 Preventive Medicine, Mount Sinai School of Medicine, New York, NY, United States; 2 Medicine, Mount Sinai School of Medicine, New York, NY, United States

Background: Snoring and sleep disorders are common among individuals with adverse health effects from their WTC work exposures. Previous observations seemed to suggest that some forms of sleep disordered breathing (SDB) could be more prevalent in this population. We reviewed the results from nocturnal polysomnography (PSG), to investigate whether REM-related OSA, and upper airway resistance syndrome (UARS), were more frequently diagnosed among WTC-exposed subjects compared to unexposed subjects.

Methods: 656 nocturnal PSGs performed at our sleep center were reviewed, 272 of them in former WTC workers. The diagnoses were categorized as: no SDB, simple snoring, REM-related OSA, UARS, and mild, moderate, and severe OSA. Bivariate and logistic regression analyses were used to examine differences in diagnoses between the two groups, using age, gender, body mass index (BMI) as predictors.

Results: The WTC group had a significantly higher prevalence of the male gender (86.8% vs. 56.3%, p<0.001), but slightly lower mean BMI (31.4 vs. 33.2 kg/m², p=0.002). Table 1 summarizes the diagnoses on PSG. There was no significant difference between the two groups by Chi square (p=0.56), or logistic regression (p=0.77) with adjustment for the 3 significant predictors (age, gender, and BMI). All p<0.001).

<table>
<thead>
<tr>
<th>No SDB</th>
<th>Snoring</th>
<th>UARS</th>
<th>RROSA</th>
<th>MildO</th>
<th>ModO</th>
<th>SevO</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTC</td>
<td>16</td>
<td>11</td>
<td>17</td>
<td>80</td>
<td>58</td>
<td>73</td>
</tr>
<tr>
<td>Non-WTC</td>
<td>32</td>
<td>21</td>
<td>20</td>
<td>119</td>
<td>63</td>
<td>107</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>32</td>
<td>37</td>
<td>199</td>
<td>121</td>
<td>180</td>
</tr>
</tbody>
</table>

Conclusions: We did not detect any difference in the diagnoses derived from PSG between the WTC-exposed and unexposed subjects. OSA was significantly associated with age, BMI, and gender in this patient population.

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Black carbon content in PM as a metric to evaluate the impact of the car-free Sundays of winter 2011 on air quality in Milan
Ari Alberto Ruprecht 1, Giovanni Invernizzi 1, Cinzia De Marco 2, Roberto Mazza 1, GrisA Mocn i 3, Constantino Stoufas 4, Dane Westerdahl 1, 1LARS Environmental Research Laboratory, SIMG-Società Italiana di Medicina Generale - ISDE International Society of Doctors for the Environment, Milano, Italy; 2 Fondazione IRCCS, Istituto Nazionale dei Tumori, Milano, Italy; 3 R&D Laboratory, Aerosol, Ljubljana, Slovenia; 4 Civil & Environmental Engineering, University of Southern California, Los Angeles, CA, United States; 5 Research Dept., Cornell University, Ithaca, NY, United States

Scope: To measure outdoor PM10, PM2.5, PM10, and black carbon (BC) during car free Sunday and normal traffic days, and to compare air quality as the percent content of BC/PM.

Results: Overall% BC/PM mean (SD) was 5.8 (95%CI 3.5-9.5; p<0.0001) with PAR%=20.3. Analysis of linear predictors in regression model showed that the effect of smoking on the COPD development ranges from 5 to 40% depending on other factor values. Meanwhile, the contribution of occupational factors in the development of COPD monotonously and significantly (p<0.0001) increased with the growth of WGDf levels. OR was from 1.8 (95%CI 0.9-3.5) to 28.4 (95%CI 13.8-58.6), PAR% from 1.2 to 28.8.

Conclusions: Smoking and VGDf are interacting factors and their influence can be considered as comparable under certain conditions. Thus, the prevention of COPD should include not only smoking cessation, but also reducing the levels of the occupational factors.

Conclusion: During the 2 car-free Sundays, a great improvement in air quality was observed, with over 50% reduction in BC/PM ratio. These data show that car free Sundays represent a useful environmental intervention to protect people from traffic proximity pollution, a well known respiratory and CV risk factor.