511. The work environment in the clinic

P4934
Medical triage for early detection of silicosis in a ceramic tile production plant
Anne Pégorié1, Nicolas Paleiron1, Thomas Erauso 1, Cecile Tromeur1, Michel André1.
1Netherlands Expertise Centre for Occupational Respiratory Disorders, NECORD, Utrecht, Netherlands; 2Division Environmental Epidemiology, Institute for Risk Assessment Sciences, Utrecht, Netherlands; 3Division Heart and Lungs, University Medical Centre Utrecht, Utrecht, Netherlands.

Objective: Dust containing crystalline silica may cause silicosis, COPD and lung cancer even at low exposure levels. Since no therapy for silicosis is available, early detection is needed to avoid further exposure and progression of the disease. In the Netherlands a national surveillance programme including medical triage has been implemented to identify construction workers with silicosis. For that purpose a diagnostic model has been developed to predict the probability of silicosis by use of a short questionnaire and lung function [1]. In this study medical triage was applied in a ceramic tile production plant.

Methods: The diagnostic model was tailored to the company using historical exposure data. Of a total of 391 workers 353 (90%) participated in the study, 52 of whom (15%) had a high risk (sumscore \( \geq 5 \)) and were candidate for medical evaluation, including a low-dose high resolution CT-scan of the lungs.

Results: 48 of 52 workers (response 92%) were referred for clinical evaluation. Mean age was 52 (±5) yrs, number of pack years 28 (±21). Silicosis was found in 8 workers (17%), another 3 had an increased number of micronodules on CT (6%). In addition, COPD was present in 6 workers (13%): Gold I in 2 (one of whom had silicosis), Gold II in 3 and Gold III in 1 worker.

Conclusion: Medical triage followed by specific clinical evaluation in a population of tile plant workers was effective in the early detection of silicosis and yielded a high percentage of COPD. The results stress the need for exposure measures in the tile production industry.

References:

P4935
Chest CT screening of asbestos exposed workers in the Arsenal of Brest: Prevalence of asbestos related abnormalities, and incidental findings

Introduction: Chest CT screening is part of the recommendations of the French medical surveillance program of asbestos exposed workers, and seems to have shortened the delay in the diagnosis of asbestos related diseases, yet conversely to have increased the number of complementary examinations due to incidental findings.

Aims and objectives: The aims of the study were to identify, lung lesions and incidental findings discovered during chest CT screening of asbestos exposed workers, assess the number of lesions considered to be professional diseases, and assess the benefits of incidental findings. The impact of tobacco smoking and the level of exposure were assessed.

Methods: It is a retrospective, analytical study on medical records and chest CT scans of 339 asbestos exposed workers who underwent a first chest CT scan between January 2006 and June 2008, indicated by the health department of Brest military arsenal.

Results: 22% had normal chest CT scans, 54% had pulmonary nodules of which two proved to be malignant. 8.8% had pleural plaques. 3% had dense sub pleural lines. Smokers have twice as many lesions as nonsmokers. No significant difference was shown between patients with different levels of asbestos exposure. On the whole, 9.4% of the images could be related to asbestos exposure. Findings were incidental in 87.6% of cases. They were considered clinically significant in 6 cases.

Conclusion: The diagnosis of few asbestos related lesions and conversely a large amount of incidental findings raises the question of the benefits of a large scale screening. Indeed, the study highlighted more of a personal, than a medical benefit.

P4936
Asthma and exposure to quaternary ammonium compounds in healthcare settings
Maria Gonzalez1, Marie-Christine Kopfferschmitt2, Carole Donnay2, Guy Hedelin3, Michel Velten3, Alain Cantineau1, Frederic de Blay2. 1Service de Pneumologie, Hopital d’Instruction des Armées, Brest, France; 2Service de Médecine de Prévention, DCNs, Brest, France; 3Centre de Medecine de Prévention, La Villeneuve, Brest, France.

Introduction: Asthma and exposure to quaternary ammonium compounds in healthcare settings

Aims and objectives: The aims of the study were to identify, lung lesions and incidental findings discovered during chest CT screening of asbestos exposed workers, assess the number of lesions considered to be professional diseases, and assess the benefits of incidental findings.

Methods: It is a retrospective, analytical study on medical records and chest CT scans of 339 asbestos exposed workers who underwent a first chest CT scan between January 2006 and June 2008, indicated by the health department of Brest military arsenal.

Results: 22% had normal chest CT scans, 54% had pulmonary nodules of which two proved to be malignant. 8.8% had pleural plaques. 3% had dense sub pleural lines. Smokers have twice as many lesions as nonsmokers. No significant difference was shown between patients with different levels of asbestos exposure. On the whole, 9.4% of the images could be related to asbestos exposure. Findings were incidental in 87.6% of cases. They were considered clinically significant in 6 cases.

Conclusion: The diagnosis of few asbestos related lesions and conversely a large amount of incidental findings raises the question of the benefits of a large scale screening. Indeed, the study highlighted more of a personal, than a medical benefit.

An increased incidence of asthma was reported among professionals working in healthcare settings.
healthcare settings. However the role of the quaternary ammonium compounds (QUATS) is not yet clear in the induction or aggravation of these symptoms.

**Aim:** To analyze, among health care settings professionals, the influence of QUATS and irritants exposure on the occurrence of respiratory symptoms including asthma.

**Methodology:** All workers with more than 6 months of seniority working in 7 healthcare facilities were requested. The survey included a self-administered questionnaire, physical examination, spirometry and blood sample. Occupational exposure assessment was made by expert judgment and workplace studies.

**Results:** 543 workers participated. QUATS occupational exposure was specified for 335 exposed and 109 non exposed. The QUATS exposed workers were 50% nurses, 22% auxiliary nurses, 19% cleaners. The frequency of all variables defining asthma was significantly higher among the QUATS exposed workers: 18.3% vs 5.5% for ever asthma, 14.4% vs 2.7% for asthma confirmed by physician, 6.7% vs 1.8% for asthma in the last 12 months, 7.9% vs 1.8% for new onset asthma after entry into healthcare profession. In multiple analysis, after adjustment 2 variables, atopy and quats exposure were associated with physician new onset asthma after entry into healthcare profession. Multiple analysis, after adjustment 2 variables, atopy and quats exposure were associated with physician new onset asthma after entry into healthcare profession.

**Conclusions:** QUATS exposure increased the risk of asthma, the high-risk tasks being the disinfection of surfaces, the preparation of soaking solutions, the dilution of products and the use of sprays.

### P4937
**Work-exacerbated rhinitis among bakers: Is it a problem?**

Jolanta Walasiak-Skorupa, Marta Wiszniewska, Agnieszka Lipinska-Orzajowa, Ewa Nowakowska-Swirwa, Patrycja Krawczyk-Szulc, Cezary Palczynski. Department of Occupational Diseases & Toxicology, Nofer Institute of Occupational Medicine, Lodz, Poland

Work-exacerbated rhinitis (WER) is pre-existing or concurrent rhinitis that is worsened by workplace exposures, while the disease has not been caused by the work environment. WER is currently less well characterized than the corresponding entity of work-exacerbated asthma and exact data on its prevalence and associated factors are usually not known. The aim of the study was to evaluate the frequency of WER in bakers with suspected respiratory occupational allergy.

**Material and methods:** The study group included 393 workers reporting respiratory symptoms at the workplace. In all subjects questionnaire, spirometry, skin prick tests (SPT) evaluation of serum total and specific IgE were performed. Recognition of occupational rhinitis (OR) was based on inhalative specific challenge test with evaluation of nasal response (nasal lavage analysis).

**Result:** OR was found in 138 (35.1%) bakers while WER was recognized in 116 (29.5%) workers. 66.7% subjects with OR and 43.1% with WER had positive SPT to common allergens, while occupational SPT were positive in 76.8% and 33.6% subjects respectively. In patients with OR the latency period, i.e. duration of exposure before the occurrence of symptoms was 10.8 whereas in bakers with WER 13.8 years. Generally, bakers who suffered from occupational rhinitis were younger than the patients with WER. Additionally, OR coexisted with asthma more frequently than WER.

**Conclusions:** WER is frequent health problem and concerns about 30% of bakers reporting allergic respiratory symptoms. Its differentiation with OR should include specific challenge test, as anamnensis, skin prick tests to occupational allergens and evaluation of serum allergen specific IgE do not display sufficient specificity.

### P4938
**Diagnostics and frequency of work-exacerbated asthma among bakers**

Marta Wiszniewska, Agnieszka Lipinska-Orzajowa, Ewa Nowakowska-Swirwa, Patrycja Krawczyk-Szulc, Cezary Palczynski, Jolanta Walasiak-Skorupa. Department of Occupational Diseases & Toxicology, Nofer Institute of Occupational Medicine, Lodz, Poland

The term work-exacerbated asthma (WEA) refers to asthma that is worsened by workplace exposures. The aim of the study was to evaluate the frequency of WEA in bakers reporting work-related respiratory symptoms and the usefulness of allergologic tests in differentiating WEA and occupational asthma (OA).

**Material and methods:** The study group included 393 bakers. In all subjects questionnaire, spirometry, SPT, evaluation of total and specific IgE level were performed. Recognition of OA was based on inhalative specific challenge test with evaluation of bronchial response or a threefold increase in non-specific bronchial hyperreactivity accompanied by increase sputum eosinophilia.

**Result:** Occupational etiology of asthma was found in 44.5% bakers while WEA was recognized in 16% subjects. 60% subjects with OA and 50.8% with WEA had positive SPT to common allergens, while occupational SPT were found in 74.9% and 34.9% subjects respectively. Whereas specific IgE to flours were found in 62% in bakers with OA and 28.6% with WEA. In patients with OA the latency period was 11.2 years whereas in bakers with WEA 13.3 years. Additionally, OA frequently coexisted with occupational rhinitis (53.7%) while among bakers with WER rhinitis was found in 31.7% subjects.

**Conclusions:** WEA can be diagnosed in 16% of bakers reporting allergic respiratory symptoms. The specific challenge test with occupational allergens should be performed among bakers with suspicion of work-related asthma, because assessment recognized in 16% (SPT to occupational allergens, evaluation of specific IgE) is not specific enough to differentiate occupational and work-exacerbated asthma.

**Abstract printing supported by Chiesi. Visit Chiesi at Stand D.30**
P4941
A systematic review of serial peak expiratory flow measurements in the diagnosis of occupational asthma
Vicky Moore1, Mariita Jaakkola2, Sherwood Burge1, 1Occupational Lung Disease Unit, Birmingham Heartlands Hospital, Birmingham, United Kingdom; 2Respiratory Medicine Unit, Oulu University, Oulu, Finland

This work systematically reviews literature on the application of serial peak expiratory flow (PEF) measurements in the diagnosis of occupational asthma (OA) and calculates summary estimates of the sensitivity, specificity and feasibility of serial PEFs.

Methods: Papers were searched for on the Medline database via the PubMed website (http://www.ncbi.nlm.nih.gov/sites/entsrez) and on the Birmingham Chest Clinic departmental website www.occupationalasthma.com from 2004 until April 2009 using the search terms “Peak flow AND occupational asthma” and “Peak flow AND work related asthma”. Abstracts were screened to select those justifying a full paper review. Papers used in the British Occupational Health Research Foundation (BOHRF) guidelines (current until June 2004) were also reviewed. Case studies and narrative reviews were excluded. Type of analysis, quality of paper, sensitivity and specificity of serial PEFs compared to reference tests and return rates were documented. Results were pooled from all studies to produce overall estimates.

Results: A total of 80 abstracts were reviewed, leading to 23 full papers plus 15 papers from the 2004 BOHRF review. 7 papers were excluded. The pooled sensitivity of serial PEF fulfilling minimum data quantity requirements for a diagnosis of OA was 82% (95% CI 76-90) and the pooled specificity 88% (95% CI 80-95). Return rates were similar between PEFs requested through workplace studies (85%) and those requested in a clinical setting (78%).

Conclusion: Based on a systematic literature search, serial PEF measurement is a feasible, sensitive and specific test for the diagnosis of OA, when potential sources of error are understood.

P4942
FEV1 decline and eosinophilia in occupational asthma
Donatella Talini1, Federica Novelli1, Elena Bacci1, Maria Laura Bartoli2, Silvana Ciamanchi1, Federico Lorenzo Dente1, Antonella Di Franco1, Lorenza Melosini2, Pierluigi Paggiaro2, 1Prevention Department, Occupational Health Unit, Pisa, Italy; 2Cardiac, Thoracic and Vascular Department, University of Pisa, Pisa, Italy

Background: There are few informations available on how rapidly lung function declines in subjects with occupational asthma (OA) who continue to be exposed. Subjects: This study monitored Occupationally Exposed (OEx) subjects with respiratory symptoms suggestive of OA (age 41.9±11.7 yrs, 4 smokers and 19 ex-smokers). 16 (44.1%) were exposed to high molecular weight compounds (HMWC) and 22 (57.9%) to low molecular weight compounds (LMWC). We monitored serial PEF, with an occupational exposure of 16.0 (range: 1-45) yrs. We used simple regression analysis to provide estimates of the decline in FEV1 during the period of occupational exposure 14 (range 12-13.7) yrs. The mean rate of change in FEV1 was −32.9 (range −217.31-426.2) ml/yr.

Results: In all subjects FEV1 decline was significantly worse (p<0.04) in subjects with higher eosinophilia (>3%), but there wasn’t difference between subjects exposed to HMWC or LMWC nor respect to the use of inhaled corticosteroids (ICS). Comparing mean FEV1 OEx/ICS at baseline and follow-up visit no significant improvement only in subjects with lower eosinophilia (91.9±17.5 vs 96.6±15.7, p=0.01). Logistic regression analysis (mean annual change in FEV1 is less than median value −32.9 ml as dependent variable) was performed.

Table 1 shows the sensitivity and specificity of DV at different cut offs in set 2.

<table>
<thead>
<tr>
<th>OR (95% CI)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>1.1 (0.9–1.2)</td>
<td>0.2</td>
</tr>
<tr>
<td>FEV1 (% of predicted)</td>
<td></td>
</tr>
<tr>
<td>1.1 (1–1.1)</td>
<td>0.04</td>
</tr>
<tr>
<td>Eosinophilia &gt;3%</td>
<td></td>
</tr>
<tr>
<td>50 (0.7–34.0)</td>
<td>0.99</td>
</tr>
<tr>
<td>Therapy with ICS</td>
<td></td>
</tr>
<tr>
<td>0.5 (0.01–18.1)</td>
<td>0.7</td>
</tr>
<tr>
<td>Exposure duration</td>
<td></td>
</tr>
<tr>
<td>0.9 (0.8–1.0)</td>
<td>0.1</td>
</tr>
<tr>
<td>Persistent work exposure vs reduction</td>
<td></td>
</tr>
<tr>
<td>6.8 (1.4–40.9)</td>
<td>0.03</td>
</tr>
<tr>
<td>Smoking habit</td>
<td></td>
</tr>
<tr>
<td>1.0 (0.1–7.0)</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Conclusion: Baseline FEV1 and sputum eosinophilia are both determinants of a more rapid FEV1 decline in patients with OA still exposed in the workplace.

P4943
Pulmonary toxicity in car spray painters
Ibrahim Ibrahim, Ahmad El-Ebiary, Arwa Abueifadil, Enas El-Maddah, Safinaz El-Shourbagy, Chest Department, Tanta University Hospital, Faculty of Medicine, Tanta, El Gharbia, Egypt

Spray painters comprise a large population at risk with potentially harmful compounds (LMWC), with an occupational exposure of 16.0 (range: 1-45) yrs.

Methods: Comparison between FEV1% pred at baseline and follow-up visit showed that FEV1% pred at follow-up was 3% 5.0 (0.7–34.0) 0.09 lower than baseline FEV1.

Results: FEV1% pred at follow-up was 3% 5.0 (0.7–34.0) 0.09 lower than baseline FEV1.

Conclusion: FEV1% pred at follow-up was 3% 5.0 (0.7–34.0) 0.09 lower than baseline FEV1.

Acknowledgement: This study was supported by Chiesi Visit Chiesi at Stand D.30
P4945
Airway symptoms and lung function among male workers in the afternoon of an oil tank explosion
Jens-Tore Granås1, Bjørg Eli Hollund1, Ågot Irgens1, Magne Brattevik2, Cecile Svanes1, Bente Elisabeth Moen1, 2. Department of Occupational Medicine, Haukeland University Hospital, Bergen, Norway; 3. Department of Public Health and Primary Health Care, University of Bergen, Bergen, Norway

Background: In 2007 storage tanks with a heterogeneous mixture of hydrocarbons, sulfite compounds and hydrochloric acid exploded and caught fire in a Norwegian industrial harbour. Pollution in air and soil produced an intense smell until clean up was terminated in 2009. Respiratory symptoms and lung function was assessed 1.5 years after the explosion among male fire-fighters, clean-up workers, and employees working in the industrial harbour at the time of the accident.

Methods: 163 exposed men (fire-fighters, clean-up workers, and local employee at the time of the accident) (response rate 86%) and 90 male controls (home address > 20 km from the accident place), aged 18-67 years participated with a questionnaire and spirometry (response rate 95%). Regression analyses of the relationship between outcomes and exposure were performed, adjusting for smoking, occupational exposure (job-exposure matrix), Phadniop2 status, infection last month, and age (symptoms).

Results: Exposed men reported more daily cough; odds ratio 2.0 [95% confidence interval 1.1, 3.7]; dyspnoea waking up half 2.6 [95% CI 1.3, 5.2] and sore throat 2.3 [95% CI 1.1, 4.7]. FEV1% predicted was 89.0 among exposed and 91.1 among controls, adjusted difference -1.9 [95% CI 4.6, 2.8].

Conclusion: Fire-fighters, clean up workers and local employee exposed to air pollution from an oil tank explosion had more airway symptoms than a control group 1.5 years after the accident, but not significantly different lung function.

P4946
Is FEV1 better than PEF at detecting asthma changes in diurnal variation?
Kerry-Anne Dennis1, Vicky Moore1, Cedda Burge1, Sherwood Burge2.
1. Occupational Lung Disease Unit, Birmingham Heartlands Hospital, Birmingham, United Kingdom; 2. Health and Human Sciences, NIOSH, Morgantown, United States

Introduction: FEV1 is considered the best measure of airflow obstruction but PEF is more commonly used to diagnose occupational asthma as it’s easier to achieve unsupervised. We investigated whether FEV1 or PEF was more sensitive at identifying asthma variation when carried out serially at home and at work.

Methods: 94 asthmatics from the USA and 84 from the UK were studied. The USA group used the Easyone and the UK group the Piko-1, Vitalograph 2110, or apex Flowmeter. Reading were taken ≥ 4 readings per day, ≥ 2 weeks with the occupational asthmatic records also having ≥ 10 day shifts. Within session PEF and FEV1 variation was assessed for the USA data (as the metric logger the best attempt) using a coefficient of variation (COV). Diurnal variation% predicted (DV) was analysed for all data. Timepoint analysis (an Oasys program scoring system for occupational asthma) was performed on occupational asthmatics.

Results: The table below compares COV and DV for PEF and FEV1 (SD=standard deviation).

<table>
<thead>
<tr>
<th></th>
<th>COV (USA)</th>
<th>COV (UK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEV1 mean (SD)</td>
<td>5.67 (8.18)</td>
<td>26.25 (8.38)</td>
</tr>
<tr>
<td>P value</td>
<td>0.03</td>
<td>0.196</td>
</tr>
</tbody>
</table>

There was no significant difference in the number of day shift positive drops (from Timepoint analysis; a drop signifies a significant difference between work and rest) between FEV1 and PEF (p=0.859) and no difference in the value required to produce a positive drop (p=0.297).

Conclusion: Diurnal variation is significantly greater for PEF than FEV1, in asthmatics with similar within session variation using logging meters incorporating some quality control. PEF is as good as FEV1 for diagnosing (occupational) asthma.

P4947
A quantitative European study to investigate the impact of asthma triggers on the lives of asthma patients
Peter Dale1, Emma Eldridge1, Gillian Newbold1, Nicola Vyas1, Sean O'Regan3, Kenneth R. Chapman5, David Price1. 1Global Health Outcomes, GlaxoSmithKline, Stockley Park, Uxbridge, United Kingdom; 2Global Medicines Future, R&D, GlaxoSmithKline, Stockley Park, Uxbridge, United States; 3Research Director, HRW Healthcare, Wallington, Oxford, Oxfordshire, United Kingdom; 4Research Director, HRW Healthcare, Wallington, Oxford, Oxfordshire, United Kingdom; 5Senior Research Manager, HRW Healthcare, Wallington, Oxford, Oxfordshire, United Kingdom; 6University Health Network, University of Toronto, Toronto, ON, Canada; 7Academic Primary Care, University of Aberdeen, Aberdeen, United Kingdom

Background: There is frequent reference to asthma triggers in the patient education literature but little is known of patients’ experiences with triggers and their impact on and relationship to asthma control.

Methods: We used patient diaries and an online study to quantify the impact of asthma triggers in patients from five European countries (France, Germany, Italy, Spain, UK). 1202 asthma patients completed the study; 177 also completed an online diary every other day for 3 weeks.

Results: People with asthma expressed concern about the long term impact of triggers – only 1% believed that triggers would not affect their asthma. All triggers were perceived as having an impact on asthma symptoms (at least 6.1 for all triggers on a visual analog scale). Perceived impact increased with the increasing number of triggers identified by each patient. 80% of respondents claimed to have modified their behaviour due to exposure to triggers at least once in the last 4 weeks. Patients reporting a high number of triggers experienced more day and night-time symptoms, a greater number of severe attacks, had a lower Asthma Control Test (ACT) score, were more likely to be hospitalised and to miss days at work/school. People with asthma experiencing 16 or more triggers missed on average 12.2 days compared with 2.9 days for those reporting 1-5 triggers. Of those patients with a high number of triggers, just 5% had never adapted behaviour to manage their asthma.

Conclusion: Asthma triggers can have an important impact on the lives of asthma patients. The impact increases with the number of triggers experienced and results in significant behavioural changes.

Funded by GSK

P4948
Occupational asthma in two healthcare workers due to an alcohol hand gel
Alastair Robertson, Vicky Moore, Cedda Burge, Marcus Wong, Sherwood Burge.
Occupational Lung Disease Clinic, Birmingham Chest Clinic, Birmingham, United Kingdom

Alcohol hand gels are increasingly being used by healthcare workers to reduce the risk of hospital-acquired infection. To date they have not been identified as a cause of occupational asthma in healthcare workers. We present two cases of occupational asthma in healthcare workers due to an alcohol hand gel containing a quaternary ammonium bacterium killing agent (denatonium).

Two healthcare workers, a midwife (case 1) and a nurse (case 2), presented with asthma improving on days away from work. Both workers completed serial peak flow measures which showed occupational asthma (case 1 OASYS score 3.43, case 2 OASYS score 3.93). A series of bronchial challenge tests were performed to the hand gel and to a control agent. Case 1 had a dual asthmatic reaction and case 2 had a prolonged immediate reaction to the hand gel. Both workers improved following removal from exposure.

Hand gels containing denatonium are used extensively by healthcare workers. There needs to be an awareness of this agent as a potential cause of occupational asthma in this group of workers.

P4949
Peak expiratory flow monitoring – Optimal criterion for diagnosis of professional asthma?
Lubomir Legath, Slavomar Perecinsky, Jozef Labus, Marek Varga, Martin Orollo.
Environmental Medicine and Clinical Toxicology, Medical Faculty of University of P. Safarik, Kosice, Slovakia (Slovak Republic) Respiratory Diseases and Tuberculosis, University Hospital of L. Pasteur, Kosice, Slovakia (Slovak Republic)

Introduction: Basic diagnostic criterion for diagnosis of professional asthma is variability of peak expiratory flow (PEF) values more than 20%. Some authors describe low correlation of PEF with FEV1. We evaluate correlation of PEF with FEV1, on obstruction model in the examination of bronchial hyperreactivity. There were 846 patients examined with suspicion to bronchial asthma by bronchoprovocation test. 245 tests were positive.

Results: In the group of the patients with positive result of bronchoprovocation test with histamine we evaluated 1980 PEF values and 1980 FEV1 values. We used patient diaries and an online study to quantify the impact of bronchoprovocation test. 245 tests were positive.

Conclusion: Serial PEF examinations are important in diagnosis of asthma which show higher sensitivity and specificity compared to other methods. The aim was to confirm validity of serial PEF examinations in model study of bronchial obstruction in positive bronchoprovocation tests where correlation of PEF with FEV1 were analysed. Our results confirmed significantly higher correlation of values PEF and FEV1 in tests with methacholine and therefore indirectly support the importance of serial PEF analysis in working and nonwork environment (self monitoring) in diagnosis of professional asthma.
Massive acute gases intoxication: Clinical presentation and outcomes

María Sánchez-Carriero Abad 1, Ana Belén Alcaide 1, Aranzazu Campo 1, Jorge Zagaceta 1, Felipe Lucena 2, Manuel Landecho 2, Félix Alegre 2, Luis Seijo 1, Juan Pablo de Torres 1, Javier Zulueta 1. 1Pulmonology, Clínica Universidad de Navarra, Pamplona, Navarra, Spain; 2Internal Medicine, Clínica Universidad de Navarra, Pamplona, Navarra, Spain

On Oct 30th, 2008, a car bomb exploded on the University of Navarre (UN) campus, causing serious damages and several fires. On Nov 5th, during the repairing works, gases retained inside the false ceiling were released, causing intoxication by inhalation in about 300 people.

A longitudinal observational study was performed to assess the presentation and outcomes of 230 patients assisted at the Emergency Room (ER) of the UN Hospital. Employees and students were affected: 104 men and 126 women, with mean age 31±12 y, 23% smokers and 13% with previous respiratory disease. 65% of patients got to the ER on Nov 5th. At the first 6 h commonest complaints were cough (80%), dyspnea (51%), sore throat (38%), and chest tightness (32%). People coming after 6 h had more frequently fever (31%), headache (30%), nausea (25%), asthenia (18%), dizziness (16%), and vomiting (7%). Chest xray (n=218) showed infiltrates in 17.5% and chest CT (n=19) interstitial/alveolar infiltrates in 68%.

Blood analysis (n=101) revealed leukocytosis in 65%, and high CRP in 85%. 80 patients were hospitalised (34.8%) with a median length of stay of 1 day (max 5 d). At the ER, patients received bronchodilators (62%) and steroids (54%). Upon discharge, bronchodilators (82%), steroids (30%) and N-acetyl cysteine (82%) were prescribed.

One month after discharge, 206 patients were re-evaluated: 41 (20%) had symptoms, consisting in dyspnea (12%) and cough (11%). Chest xray (n=162) was normal in all the cases. Chest CT (n=36) showed alveolar-interstitial infiltrates in 5 patients. Spirometry (n=193) was normal in all the cases. We describe the clinical features of an acute intoxication by unknown gases, with a biphasic presentation of symptoms and short clinical resolution.