may result in a greater spread of TB among their contacts. However, new studies are needed to determine risk factors at the individual level, in order to guide preventive actions for silicosis and TB in regions with silica exposure activities.

1344 RELATIONSHIP BETWEEN SPIROMETRIC VALUES AND THE HISTORY OF ENVIRONMENTAL EXPOSURE TO ASBESTOS IN A COMMUNITY IN THE STATE OF MEXICO

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Introduction It has been established that environmental exposure due to residence in the vicinity of factories where asbestos use is associated with the risk of lung disorders.

Objective To relate the history of environmental exposure to asbestos, with spirometric values of an adult population of the community of San Pedro Barrientos, Tlalnepantla in the state of Mexico.

Material and methods A spirometry accompanied by a questionnaire of occupational and environmental exposure to a sample of 123 adult inhabitants, who had a history of having lived in the community for at least a year in the period was performed, and respiratory symptoms ranging from 1943–1998, during which time he was one of the active processing plants nation's largest asbestos.

Results The equations that best adjusted to calculate the predicted values in the study population, forced expiratory volume in one second (FEV1) and forced vital capacity (FVC) were the NHANESIII study of Mexico-American population (June, 2001).

A negative correlation between years of residence in the community found Barrientos, with the percentage obtained in the FEV1/FVC, FVC and FEV1 with a value of -0.05 , -0.16 and -0.22 respectively. Which is an indicator of the tendency to have lower percentages in spirometric values increased residence time in the community.

Conclusions Given that spirometry is the most accessible to evaluate mechanical ventilation test, and is useful for the diagnosis and monitoring of various diseases, efforts should be made to make it available and perform as recommended standardisation in order to have acceptable and reproducible manoeuvres. It is important to note the trend of the results, which indicate that the longer the exposure subjects had lower percentages predicted spirometry values (adjusted for sex, age and height).

The result of this research supports the recommendations issued by the United Nations (UN) and the International Labour Organisation (ILO), which states that there is no safe level of exposure to asbestos and should promote the elimination of Use in whatever form and materials containing.

We recommend further studies extension to the population and evaluated the study spirometry to identify any histopathological damage by environmental exposure to asbestos, as well as make the surrounding population studies that community spirometry.

1375 ASSOCIATION BETWEEN AGE-STRATIFIED OBSTRUCTIVE SLEEP APNEA SYNDROME AND OBESITY

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Introduction Obstructive sleep apnea (OSA) among public-transportation drivers becomes a social concern in a certain number of traffic accidents. Major risk factors of OSA were reportedly obesity and ageing; however, age stratified relationship between OSA and risk factors have yet to be evaluated. This study aimed to evaluate the association between OSA and obesity stratified by age-groups.

Methods One hundred and fifty-five bus drivers were screened by the flow sensor method, to detect subject with a respiratory disturbance index (RDI) more than 15. Then, portable polysomnography (PSG) tests were performed to measure an apnea hypopnea Index (AHI): subjects with $AHI \geq 40$ were diagnosed as OSA; for those with $20 \leq AHI < 40$ full PSG tests were performed. Portable PSG $AHI \geq 20$ was diagnosed as OSA. Relationship between OSA and BMI were statistically compared in three age-groups; younger than 40, 40 to 49, and 50 and older by the logistic regression analysis and unpaired t-test.

Result Of the 152 subjects (45.2 ± 9.3 year-old, BMI 24.5 ± 4.5) after excluding 4 subjects (unexamined by PSG), 55 subjects showed $RDI > 15$ by the screening test and underwent PSG. 25 subjects were diagnosed as a definite OSA. BMI was significantly associated with OSA with OR of 1.17 (95% CI: 1.06 to 1.29). ORs for OSA become greater as the age increased showing greatest OR in 50 and older (OR 5.15, 95% CI: 1.17 to 22.8). Mean BMI of OSA subjects with younger than 40 was greater than that of non-OSA (BMI 34.8 ± 9.3 and 23.1 ± 5.2 , respectively, $p=0.0012$), however, no difference was found in those with 40–49 and 50 and older.

Discussion The result suggests weight reduction may more effective for younger drivers. Obesity of the drivers is highly associated with OSA for younger than 40, while ageing is more correlated with OSA than obesity for 50 and older.

868 RESPIRATORY SYMPTOMS IN COFFEE WORKERS OF LAVRAS – MINAS GERAIS

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Introduction The importance of coffee to the country can be verified by the Brazilian leadership in world production and export, as well as being the second largest consumer of the product in the world (MINISTRY OF AGRICULTURE, 2017). The literature shows that coffee processing workers are subject to a higher

prevalence of respiratory problems. However, little is known about the respiratory health of coffee plantation workers.

Methods A case-control study was carried out, whose sample was obtained by convenience sampling in four coffee farms in the region of Lavras/MG. The data were obtained by means of a questionnaire, occupational history collection, qualitative evaluation of work environments, spirometry and measurement of exhaled nitric oxide (FeNO).

Results 63 workers were evaluated (median age 43 years/tillage time 11 years). The general population has a chronic cough rate of 3.1%, wheezing of 23.5% and dyspnea (MRC1) of 36.9% (PLATINO, 2006). In this study, coffee farmers had a higher prevalence only in the cough, rate of 6.6%. This symptom was also found among coffee plantation workers in Tanzania (23%) and also in Uganda in the Arabica and Robusta coffee factories. The group of workers also presented a tendency to lower values of FEV1 and still higher values of FeNO, but without reaching statistical significance. This finding was also found in another study in coffee plantations in Tanzania in which a rate of 13% FeNO above 25 ppb was observed among workers.

Conclusion Due to the importance of coffee for the Brazilian economy and the significant number of coffee workers, new studies with larger samples are necessary to verify the hypothesis and to guide health and preventive actions regarding respiratory problems in these workers

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SARCOIDOSIS IN TWO WORKERS MAKING LIGHT BULBS

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Introduction Two out of about 30 workers in a light bulb production unit were diagnosed with 'sarcoidosis' and referred to our occupational health clinic in 2014.

Case reports A 27-year-old male (case A) was diagnosed with sarcoidosis in January 2013. He presented with fatigue, exertional dyspnea, mildly restricted pulmonary function (TLC 81%) and mildly reduced diffusion capacity (DLCO 71%). Chest imaging by computerised tomography showed a nodular pattern with lymphatic distribution and enlarged mediastinal lymph nodes. Histology of lymph node tissue (obtained by mediastinoscopy) revealed granulomas compatible with sarcoidosis. It came to light that one of his work colleagues also had sarcoidosis. This 33-year-old male (case B) had been diagnosed with sarcoidosis in 2008, based on a history of exertional dyspnea, abnormal chest radiography and an open lung biopsy showing granulomas.

Both men had worked, since 2005, as technical operators in a factory producing light bulbs. There was potential exposure to zirconium, mercury, thallium and thorium, but considerable exposure was mentioned to dust originating from the clipping of tubes made of 'fused quartz glass'. X-ray diffraction of settled dust samples demonstrated mainly amorphous silica, possibly with some cristobalite.

Subsequent microscopic examination of the mediastinal lymph node tissue (case A) and lung tissue (case B) under polarised light revealed multiple small birefringent crystals in relevant areas. Blood Lymphocyte Proliferation Test (LPT) was negative for beryllium and zirconium, but convincingly positive for nano-silica in case A. LPTs were negative for beryllium and nano-silica in case B (who was under corticosteroid therapy). Both patients improved clinically, radiologically and functionally after removal from exposure.

Discussion Several elements suggest that these two cases of 'pseudo-sarcoidosis' were caused by occupational exposure to silica.

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INFLAMMATORY PROFILE IN OCCUPATIONAL CHRONIC OBSTRUCTIVE PULMONARY DISEASE ATTRIBUTED TO DIFFERENT ENVIRONMENTAL FACTORS

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Introduction Occupational exposures are of the major risk factors of chronic obstructive pulmonary disease (COPD). As these factors are different entities, there is a probability of numerous unique disease endotypes caused by certain industrial pollutants.

Methods The objective of the study was to evaluate inflammatory serum profiles and to discover potential biomarkers of COPD attributed to different environmental factors. It was an observational prospective study recruited 167 COPD subjects, 42 exposed to aromatic hydrocarbons 55 to inorganic dust and 70 tobacco smokers. Control group – 62 healthy workers. Groups were matched by demographics and smoking status. Serum pulmonary inflammation markers matrix metalloproteinase 7 (MMP7), monocyte chemotactic protein-1 (MCP1), interleukin 1 β (IL1 β), interleukin 1 β receptor antagonist protein (IL1RA), transforming growth factor β (TGF β), basic fibroblast growth factor (FGF2), vascular endothelial growth factor (VEGFA), superoxide dismutase 3 (SOD3), interleukin 12 (IL12), interleukin 17 (IL17) and activation-regulated chemokine (PARC/CCL18) level were assessed by ELISA. Multiple regression model was used to explore the relationships. ROC analysis and area under the curve (AUC) was used to evaluate diagnostic accuracy.

Result Significant differences between groups were found in IL1 β (12,1 $\pm$ 1,45 pg/ml in COPD due to chemicals, 12,1 $\pm$ 1,45 pg/ml in COPD due to dust and 0,2 $\pm$ 0,10 pg/ml in COPD due to tobacco smoke), TGF β (1228,9 $\pm$ 130,30 pg/ml, 421,2 $\pm$ 29,02 pg/ml and 263,7 $\pm$ 111,43 pg/ml respectively), FGF 2 (0,1 $\pm$ 0,07 pg/ml, 21,5 $\pm$ 1,06 pg/ml and 9,3 $\pm$ 0,77 pg/ml), VEGF A (129,9 $\pm$ 24,79 pg/ml, 489,2 $\pm$ 73,93 pg/ml and 852,7 $\pm$ 73,81 pg/ml) and SOD3 (1,4 $\pm$ 0,08 ng/ml, 11,3 $\pm$ 0,90 ng/ml and 15,7 $\pm$ 9,39 ng/ml). In the multiple regression model, significant predictors were IL1 β , TGF β , VEGFA levels for chemical risk factor (AUC=0.9) and IL1 β , FGF2 for dust risk factor (AUC=0.8).

Conclusion Serum interleukin 1 β , TGF β , FGF2 and VEGF A levels have the potential of being markers of COPD due to different environmental factors.