

were not lead to transparent discrepancy in all pulmonary function parameters. We concluded that pulmonary ventilation function is mainly in relation to silicosis category or the formation and the degree of massive fibrosis.

## 不同期别铅矿矽肺患者的肺功能参数

蒋轶文, 陆强, 马起腾  
辽宁省职业病防治院

**关键词** 矽肺, 肺功能, 胸部 X 线摄影

**目的:** 研究铅矿矽肺患者肺功能损伤情况, 分析不同期别患者的肺功能参数。**方法:** 65 例铅矿矽肺患者和 30 例健康成人, 均进行肺通气功能检查及拍摄胸部正位片。比较不同胸片表现患者其肺功能参数的情况。**结果:** (1) 随着尘肺期别的增高, 各肺功能参数值呈下降趋势, 与对照组相比, 一期、二期、三期尘肺患者各项肺功能参数均有明显差异, 尤其是  $FEV_{1.0}$ ,  $V_{75}$ ,  $V_{50}$  和  $V_{25}$ ; 各期患者相比, 上述四项参数亦有明显差异 ( $P < 0.05$ )。 (2) 随着矽肺损害累及肺区数的增加, 各项肺功能参数也有轻微下降, 当出现尘肺大阴影时, 下降更明显, 特别是  $FEV_{1.0}$ ,  $V_{75}$ ,  $V_{50}$  和  $V_{25}$  ( $P < 0.05$ ), 但在累及 4、5、6 肺区之间比较无明显差异。 (3) 小阴影形态及密集度的不同对肺功能参数的影响不大。**结论:** 矽肺患者肺通气功能与矽肺期别及大阴影的形成和程度相关。

### OD-1-6

## RAPID DECLINE IN $FEV_1$ AND THE DEVELOPMENT OF BRONCHITIC SYMPTOMS AMONG NEW CHINESE COAL MINERS

MEI-LIN WANG<sup>1</sup>, EDWARD L. PETSONK<sup>1</sup>, ZHIEN WU<sup>2</sup>, QINGUO DU<sup>3</sup>, KAILIANG PENG<sup>2</sup>, YADONG LI<sup>3</sup>, SHAOKUI LI<sup>3</sup>, GUIHAI HAN<sup>3</sup>, and MICHAEL D. ATTFIELD<sup>1</sup>

1 NIOSH, Division of Respiratory Disease Studies, Morgantown, WV 26505, USA

2 Tongji Medical College of Huazhong University of Science and Technology, Wuhan, 430030, P.R. China

3 Xuzhou Mining Group Company Ltd. Xuzhou, Jiangsu, P.R. China

**Key Words** Forced expired volume, bronchitis, coal mining

Newly hired Chinese underground coal miners enrolled in a three-year prospective cohort study were previously shown to experience a nonlinear pattern of  $FEV_1$  change (slope) over time. Study miners ( $n=317$ ) experienced a rapid  $FEV_1$  decline during the first year of employment, a plateau during the second year, and partial recovery during the third year of dust exposure.

We here report the relationship between the  $FEV_1$  changes observed in this cohort and development of

bronchitic symptoms (persistent cough and/or phlegm) during the study, using a mixed effect model. Bronchitic symptoms were significantly increased at the 11-month survey and stayed elevated thereafter, with an average incidence of 8.2%. Miners were categorized into four groups by combinations of symptom development (Br+ or Br-) and current smoking (Sm+ or Sm-). At 24 months follow-up, miners who both developed bronchitic symptoms and smoked (Br+ Sm+ group) showed the sharpest drop in FEV<sub>1</sub>, losing 234 ml, after controlling for other co-variables, followed by the Br+ Sm- group (-194 ml), Br- Sm+ group (-186 ml), and the Br- Sm- group (-98 ml). Among new coal miners, the development of bronchitic symptoms contributes to a sharp early decline in lung function, as does tobacco smoking.

## 中国煤矿新工人 FEV<sub>1</sub> 迅速下降和支气管炎症状的发展

(作者及单位见原文)

**关键词** 用力呼气容积, 支气管炎, 采煤业

以中国井下煤矿新工人为研究对象建立的 3 年前瞻性队列研究, 结果曾显示随着时间的推移 FEV<sub>1</sub> 呈非线性下降。队列中的 317 名矿工在就业第一年 FEV<sub>1</sub> 明显下降, 第二年出现一个下降平台 (没有明显下降), 而第三年则有部分恢复。

本文应用混合效应模型分析该队列在观察期间 FEV<sub>1</sub> 改变和支气管炎症状 (慢性咳嗽、咯痰) 发生之间的关系。支气管炎症状在随访 11 个月时明显增加, 以后增加缓慢, 平均发生率为 8.2%。将研究对象按有无支气管炎症状和目前是否吸烟分为 4 组。随访 24 个月, 同时吸烟和有支气管炎症状者 FEV<sub>1</sub> 急骤下降 234ml, 控制其它变量后, 有支气管炎症状不吸烟组下降 194ml。无支气管炎症状吸烟组下降 186ml, 无支气管炎也不吸烟组下降 98ml。在新煤矿工人中, 发生支气管炎症状是早期肺功能明显下降的原因, 如同吸烟对肺功能的影响一样。

### OE-1-1

## OCCUPATIONAL RESPIRATORY DISEASES IN DEVELOPING COUNTRIES: PRESENT SCENARIO AND POSSIBLE PREVENTION

ANAND PRAKASH SAHU

Preventive Toxicology Division, Industrial Toxicology Research Centre, Lucknow-226 001, India

**Key Words** Developing countries, Occupational respiratory diseases Prevention

Airborne substances exposure to industry and mine workers can lead to occupational respiratory diseases (ORD). Till today the most serious ORD are silicosis, asbestosis, coal worker pneumoconiosis, mesothelioma and associated disorders and causes significant morbidity and mortality. In developing countries due to lack of impact



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