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PULMONOLOGY

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REVIEW

Issue 3—The occupational burden of respiratory diseases, an update

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- Chronic respiratory diseases:
  - lung cancer
  - infections

- Third leading cause of death

- Workplace exposures : one of the main risk factors for chronic respiratory disease-associated mortality
- Occupational exposures are also an important risk factor for the diffusion of respiratory infections.

- Occupational lung diseases,such as pneumoconiosis, have not disappeared.
- There are new workplace exposures :

- free silica in artificial stone

- there are novel occupational lung diseases :

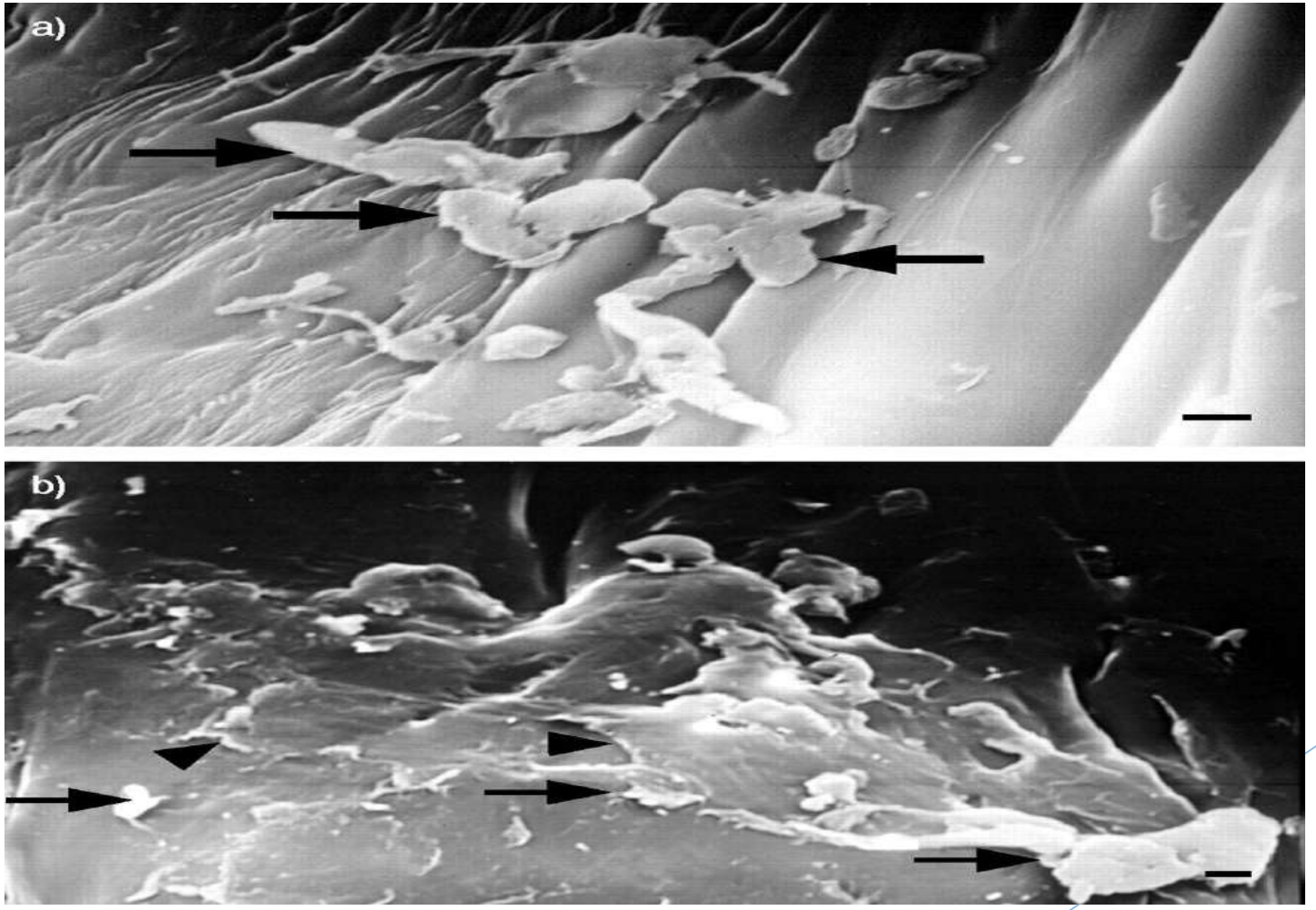
1- nylon flock disease :

small fiber particles ,case chronic interstitial lung disease

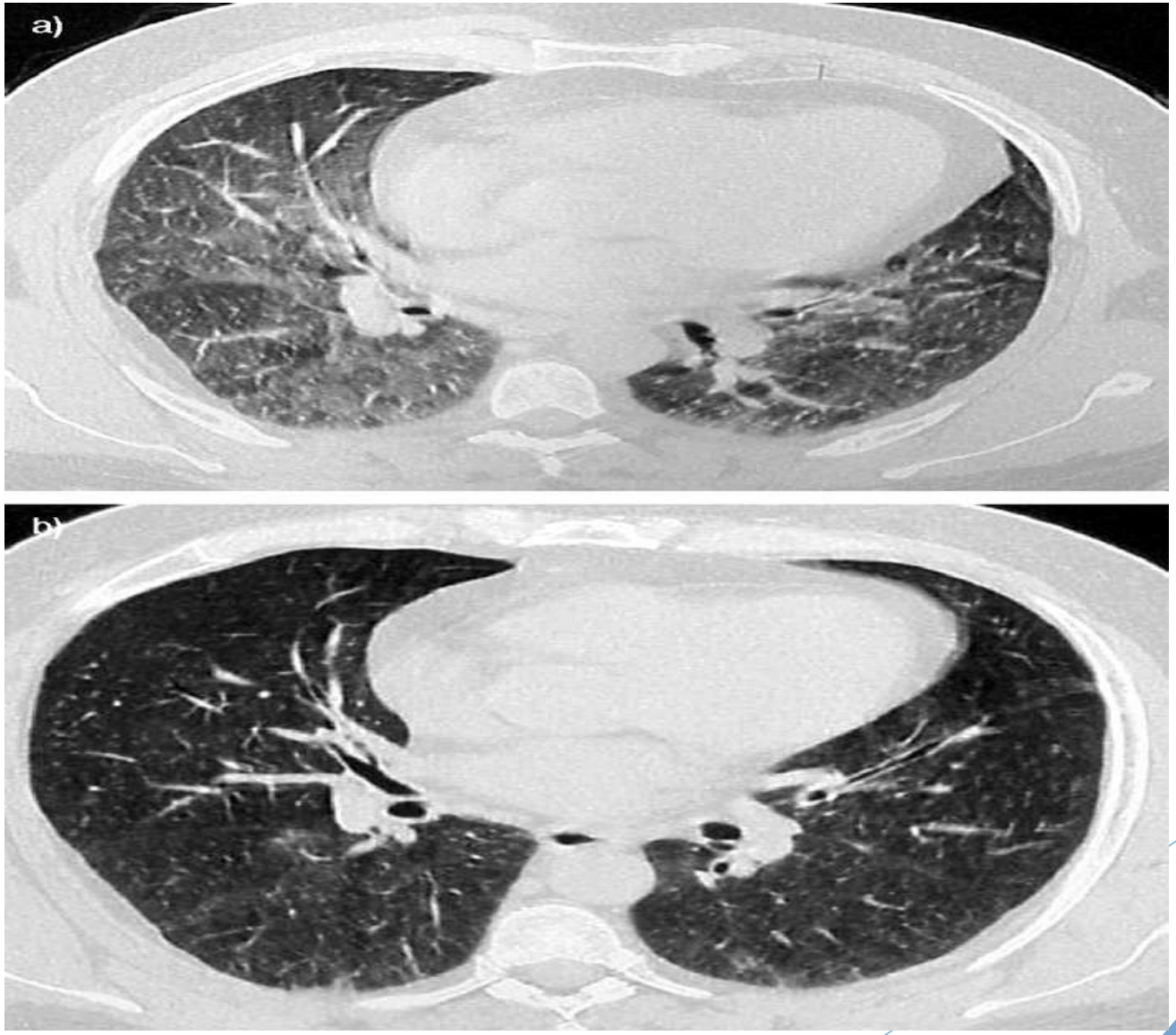
Nylon Flock

نوعی الیاف نایلونی است که معمولاً به‌صورت مایع یا پودر شده در روی سطوح مختلف پاشیده می‌شود و برای ایجاد بافت‌های نرم و مخملی استفاده می‌شود.

a) Scanning electron microscope (SEM) photomicrograph of the polypropylene-flock material showing irregular particles in shape and size scattered widely.



a) Inspiratory high-resolution computed tomography (HRCT) examination showing density increase, especially in the posterior subpleural region and peribronchial thickening. b) Expiratory HRCT examination showing air trapping areas indicating a distal airway ...



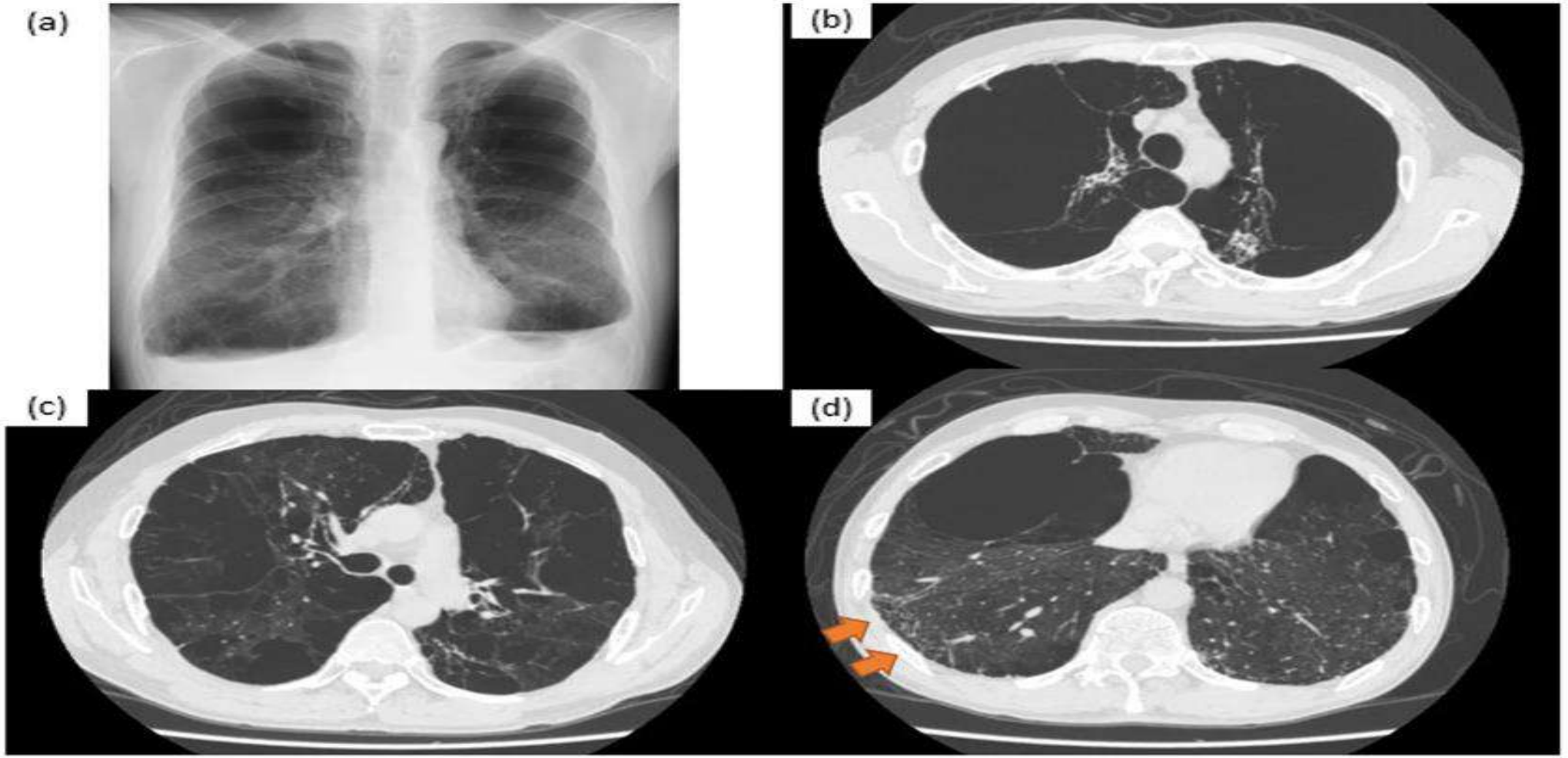
Indium lung disease : an occupational condition characterized by pulmonary issues caused by exposure to indium compounds.

-This disease typically begins with pulmonary alveolar proteinosis (PAP)
-progress to more severe conditions such as fibrosis and emphysema.

Initial cases of indium lung disease have been reported primarily in Japan

Fig. 2

From: A case report of Indium lung with progressive emphysema and fibrosis underwent lung unilateral transplantation 20 years after the end of the exposure



Images of chest X-ray and CT begore the lung transplantation. Images of chest X-ray (a) and CT (b)-(d). **a** The chest X-ray showed hyperinflation of bilateral lungs and a flattened diaphragm. **b**-**d** Cystic enlargement of airspace was more severe in the upper lobes than in the lower lobes. Reticular changes (orange arrows) were observed in the subpleural area in the area of ground-glass opacity mainly in the lower lobes

(Ardystil syndrome :ILD (A FACTORY IN SPAIN=ARDYSTIL)

Inhaling of large amounts of Acramin a textile printing spry :

27 case
13 CASE Organizing pneumonia
15 case still had symprom , 6 case had reduce DLCO after one years

یک نوع رنگ یا پوشش است که معمولاً در صنایع نساجی مورد استفاده قرار می‌گیرد.

Occupational **Asthma**

- prevalence of severe asthma was found to be high and often related to a persistent exposure to asthmagens at work.

- Among the new asthmagens, disinfectants may play an important role.

COPD and Chronic bronchitis

- occupational exposure and smoking.

- pesticide exposure : A strong occupational risk factor for airways obstruction.

- There is growing evidence of the impact of workplace exposure :
- Vapours, gases, dusts and fumes on COPD and chronic bronchitis occurrence, also in developing countries

Idiopathic pulmonary fibrosis (IPF) and hypersensitivity pneumonitis

- The latest evidence confirms the association between dust or second-hand cigarette smoke exposure and IPF
- The prevalence of occupational exposure ranged between 5.8 % and 45.5 %.
- The latest scientific evidence confirms an association between occupational exposure to airborne pollutants and IPF or HP

Pneumonia

- For some risk factor (welding fumes) this association is consistent.

Silicosis

- In recent years, there have been notable outbreaks of silicosis in industries not traditionally associated with silica exposure
- specifically sandblasted jeans production
- solid surface composites and engineered stone
- predominantly reported from Turkey, Italy, Australia, Spain, the United States, China

- Artificial stone-associated silicosis:

- In contrast with natural stonerelated cases, show

- Shorter latency period
- Rapid radiological progression
- Accelerated decline in lung function
- Elevated mortality.

- Silicosis :elevated risk of tuberculosis and impaired immune function, with a notable association observed among artificial stone

- Asthma prevalence could potentially be highest
- particularly those exposed to phthalic anhydride and epoxy resins.

Artificial stone

- Worker exposure to RCS during the manufacture of artificial stone countertops can be high.
- **This exposure is driven, in part, by the high silica content in artificial stone that can be >90%.**

- For comparison:
- the silica content of natural marble is 3%,
- and granite stone 30%.
- In mining, the silica content of ore in Ontario (1958–1975) was estimated to be <10% in nickel mines;
- 15%–35% in gold mines and
- 6%–70% in uranium mines.

- Studies of artificial stone workers have reported variable exposure levels that range from values below the limit of detection up to 3.88 $mg/m^{3.}$

- The current health-based recommendation for an 8-h exposure limit published by the American Conference of Governmental Industrial Hygienists (ACGIH) is 0.02 mg/m^3.

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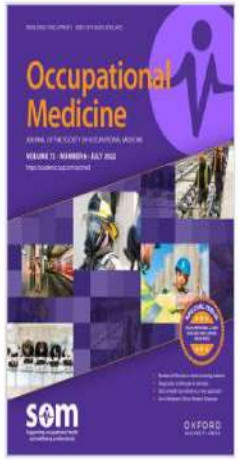

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JOURNAL ARTICLE

Silica health surveillance: a new approach

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Evelyn Lee ✉, Lay Lay (June) Sim

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Silica health surveillance: a new approach

- The chest radiograph has for many decades, been a mainstay of health surveillance for pneumoconiosis .

- , The experience in Queensland, with normal chest radiography in 43% of workers who subsequently were confirmed to have silicosis.

- , when silicosis was identified on chest radiography it was in many cases, too late to prevent significant disability and rapid disease progression.

- Significant numbers of workers, mostly aged in their 30s and 40s, developed silicosis with some progressing rapidly to progressive massive fibrosis (PMF), respiratory failure and death.

- The pattern was replicated in other European countries, the United States, China and Australia.

- At that stage, reports from Queensland indicated one in four stoneworkers had developed silicosis

- **Following discussions between WorkSafe occupational physicians and local radiologists, a trial of screening using low dose HRCT imaging was approved by WorkSafe.**

Occupational Medicine

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Supporting occupational health and wellbeing professionals

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JOURNAL ARTICLE

0-084 AUTOIMMUNE MANIFESTATIONS OF OCCUPATIONAL SILICA EXPOSURE IN THE STONE BENCHTOP INDUSTRY, VICTORIA, AUSTRALIA FREE

Gwini SM, Hoy RF, Walker-Bone K

Occupational Medicine, Volume 74, Issue Supplement_1, July 2024, Page 0,
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Published: 03 July 2024

Article Contents

Volume 74, Issue
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Article Contents

Abstract

JOURNAL ARTICLE

P-498 CAN WORKING WITH PNEUMOTOXIC MEDICATION LEAD TO PULMONARY FIBROSIS IN HEALTH WORKERS? A CASE OF PULMONARY FIBROSIS AFTER A CAREER WITH DAILY HANDLING OF BLEOMYCIN FREE

Stephan Keirsbilck, Nico De Crem, Wim Wuyts UZ, Eva Boeykens, Ben Nemery, Steven Ronsmans

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https://doi.org/10.1093/occmed/kqae023.1253

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A CASE OF PULMONARY FIBROSIS AFTER A CAREER WITH DAILY HANDLING OF BLEOMYCIN

- Introduction
- Bleomycin, an antitumor antibiotic used to treat malignancies, causes interstitial pulmonary fibrosis in 10% of patients receiving high cumulative dosages intravenously. Bleomycin is a model chemical to induce lung fibrosis in experimental animals. Intralesional injection bleomycin is also used in dermatology to treat recalcitrant warts (without evidence of lung toxicity to the patients).
- Methods
- A 67-year-old man was referred for pulmonary fibrosis. He was a smoker for about 20 years (1/2 pack/day,)
- HRCT was compatible with nonspecific interstitial pneumonia, showing subpleural reticulation, thickened interlobular septa and ground-glass opacities mainly in posterobasal areas. Lung function showed normal volumes but a decreased diffusing capacity (DLco 65% predicted).
- Common causes of pulmonary fibrosis (including autoimmune disease, hypersensitivity pneumonitis) were excluded.
- He had recently retired after a 25-year career as a dermatologist in private practice, during which he had treated, almost every day, patients with warts with intralesional injections of bleomycin using jet injectors.
- He prepared and administered the medication himself, without taking safety precautions against the inhalation of small droplets generated by the pneumatic jet injection. He is estimated to have handled about 90 mg of bleomycin per year.
- Discussion and conclusion
- This unique case suggests that repeated occupational exposures to small amounts of airborne bleomycin in dermatological clinical practice may lead to lung fibrosis.

Volume 74, Issue 5
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JOURNAL ARTICLE

Lung cancer risk associated with occupations in women: a pooling study

Get access >

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Lung cancer risk associated with occupations in women: a pooling study Get access Arrow

Background

Occupation is an important risk factor for lung cancer. This knowledge is mainly based on studies conducted on men, with the results being generalized to women.

Aims

We aimed to identify the relationship between different occupations and lung cancer in women.

Methods

Pooling study in which data were pooled from six case–control studies conducted at 13 Spanish hospitals and 1 hospital in Portugal. Each woman's longest held job was coded as per the ISCO-08. Results were adjusted for age, smoking, and exposure to residential radon.

Results

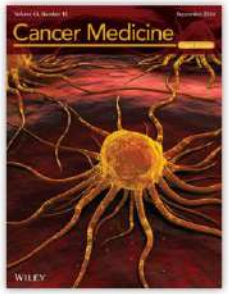
The study population comprised 1262 women: 618 cases and 644 controls. The reference group were white-collar workers.

The adjusted multivariate analysis showed a higher risk of developing lung cancer cooks (OR: 3.59; 95% CI 1.52–8.48), domestic cleaners and helpers (OR: 2.98; 95% CI 1.54–5.78), homemakers (OR: 2.30; 95% CI 1.26–4.21) and farmers, livestock farmers and gardeners (OR: 2.06, 95% CI: 1.11–3.81). For small-cell carcinoma, the highest risk was observed in cooks.

Conclusions

Some occupations may be associated with an increased risk of lung cancer in women and this risk could vary by histologic subtype; however, further research is needed to confirm these associations. In any case, protection measures must be implemented in the workplace aimed at reducing the risk of lung cancer among women workers, and more studies exclusively focused on women are warranted.

Cancer Medicine
Open Access



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RESEARCH ARTICLE | Open Access

Global burden of lung cancer in women of childbearing age attributable to ambient particulate matter pollution: 1990–2021

Ying-da Song, Ruizhe Wang, Jia-xuan Wang, Xun-wu Tan, Jun Ma

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Song and Ma contributed equally as cofirst authors.

Global burden of lung cancer in women of childbearing age attributable to ambient particulate matter pollution: 1990-2021

Background

This study aimed to evaluate the global burden of lung cancer due to ambient particulate matter (PM) pollution in women of childbearing age from 1990 to 2021.

Methods

This was a secondary analysis utilizing data from the Global Burden of Disease (GBD) 2021, with a focus on the temporal trends of the lung cancer burden attributable to ambient PM2.5 among women of childbearing age.

Results

From 1990 to 2021, the lung cancer burden attributable to ambient PM2.5 among women of childbearing age exhibited an increasing trend.

Furthermore, increasing attention should be paid East Asia, and China, as ambient PM pollution remains a critical target for intervention.