

# LUNG CANCER RISK AND SILICA EXPOSURE IN CHINESE MINES AND POTTERY FACTORIES: THE MODIFYING ROLE OF OTHER WORKPLACE LUNG CARCINOGENS

P. Cocco,<sup>1</sup> C.H. Rice,<sup>2</sup> J.Q. Chen,<sup>4</sup> M.A. Mc Cawley,<sup>5</sup> J.K. McLaughlin,<sup>6</sup>  
M. Dosemeci.<sup>3</sup>

<sup>1</sup>Institute of Occupational Medicine, University of Cagliari, Italy; <sup>2</sup> Department of Environmental Health, University of Cincinnati, Ohio, United States; <sup>3</sup> Occupational Epidemiology Branch, National Cancer Institute, Bethesda, Maryland, United States; <sup>4</sup> Department of Labor Health and Occupational Diseases, Tongji Medical University, Wuhan, China; <sup>5</sup> National Institute for Occupational Safety and Health, Morgantown, West Virginia, United States; <sup>6</sup> International Epidemiology Institute, Rockville, Maryland, United States.

To explore whether exposure to other lung carcinogens, staging and clinical features of silicosis, and dust overload confound or modify the association between silica and lung cancer, we used data from a collaborative study conducted in the late 1980s in 29 Chinese mines and potteries. The study design was a nested case-control study of 316 lung cancer cases and 1356 controls, matched by decade of birth and facility type. Over the entire study population, lung cancer risk showed a modest association with silica exposure, which did not vary after allowing for the silicosis effect. Lung cancer risk was higher among subjects with isolated exposure to silica than among subjects exposed to silica and other workplace lung carcinogens, such as polycyclic aromatic hydrocarbons (PAHs), nickel or radon-daughters. The cross classification of lung cancer risk by categories of exposure to respirable silica and total respirable dust did not show an independent effect of total respirable dust. Silicosis showed a modest association with lung cancer, which did not vary by severity of radiological staging, or by radiological evidence of progression in the disease, or by level of silica exposure. However, among silicotic subjects, lung cancer risk was elevated only when exposure to cadmium and PAH had occurred, while it was not elevated among unexposed to cadmium and PAH or among exposed to other lung carcinogens. Future epidemiological research on silica and lung cancer should incorporate more detailed information on the various lung carcinogens in the workplace and on surface size and age of silica particles to understand whether and to what extent they can affect the carcinogenic potential of silica.

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1 Nirim St, P.O.Box 9352

Tel Aviv, 61092, Israel

Tel: 972-3-638-4444

Fax: 972-3-638-4455

E-Mail: [EPICOH@ortra.co.il](mailto:EPICOH@ortra.co.il)

