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Letter to the Editor

A Benefit of Reducing Lung Cancer Incidence in Women Occupationally Exposed to Cotton Textile Dust

To the Editor:

The article by Wernli et al. [2003] reported that women textile workers exhibit a reduced incidence of lung cancer with respect to the general population. These authors also reported that this reduced rate of lung cancer is not likely a result of differences in smoking. However, they note that the prevalence of smoking is very low. As mentioned by Wernli, these findings of lower than expected cases of lung cancer have been previously reported in the textile [Enterline et al., 1985; Mastrangelo et al., 2002] and other industries [Mastrangelo et al., 2004] for men. Previous studies [Register General's Decennial Supplement-England and Wales, 1971; Lange, 1988] on women in the cotton textile industry also reported lower than expected lung cancer rates supporting Wernli's findings. A similar finding has been reported [Wang et al., 2002; Lange et al., 2003] for women in the farming industry where they are also exposed to organic dust [Zock et al., 1998; Lange, 2000; Viet et al., 2001].

Historically, reduced lung cancer risks reported in textile workers as well as in other industries (e.g., dairy farmers) were explained as a result of reduced smoking [Lange, 1988]. However, according to a review [Rylander, 2002], textile workers, particularity in the cotton industry, are exposed to elevated levels of endotoxin-(lipopolysaccharide)-contained in the organic dust. Endotoxin is itself an anti-cancer agent and has been used as a cancer therapeutic agent in clinical trials [Otto et al., 1996]. In a study that controlled for smoking, Mastrangelo et al. [2002, 2004] reported the same results as the earlier investigations, suggesting that the reason for reduced lung cancer risk in populations exposed to organic dust is the inhalation of endotoxin contained in this dust. Accordingly, lung cancer risk at unity was observed in workers exposed by inhalation to cellulose dust not containing endotoxin [Lanes et al., 1993], suggesting that the irritant effects of dust are not responsible for the decrease in lung cancer risk. Lastly, it has been suggested that as the textile industry reduces dust exposure, lung cancer mortality in these workers is moving from a reduced risk toward unity [Mastrangelo et al., 2002]. Thus, as engineering controls reduce dust levels, the observed rate of lung cancer will increase. Certainly, there is a multitude of respiratory diseases caused by organic dust warranting better controls.

This correspondence provides an explanation for the reduced lung cancer risks in the population studied by Wernli as well as other populations [Lange et al., 2003] that are exposed to airborne endotoxin-containing dust. Future studies of populations exposed to organic dust should consider this hypothesis in explaining reduced rates of lung cancer.

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