

The Study of Asbestos Use in China

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Abstract

China continues to be a major producer and user of asbestos. In addition to mining activities there is continued manufacture of a wide variety of products, many of which are then distributed worldwide. There are opportunities for major research studies, such as studying the effects of asbestos among populations with significant numbers of women. Most asbestos used is chrysotile, also allowing for addressing issues of fiber type. There are also some significant challenges to undertaking research given the nature of the Chinese medical system and health care having been concentrated at worksites for potentially affected workers. Nevertheless, data has been accumulating regarding issues of health outcome and these will be presented. Collaborative efforts between U.S. and Chinese investigators have made this possible, and how such collaborative efforts can be undertaken will be reviewed. The role for educating public health agencies and workers will be discussed.

Introduction

China continues to be a major producer and user of asbestos [1]. The majority of the asbestos used is chrysotile, as is the case in most of the world. China mines some 450,000 tons each year, and uses about 410,000 tons making cement, construction materials, textiles, brakes and a variety of other products. Exports are sent to dozens of countries.

There have been relatively few studies about asbestos exposed populations in China, compared to the rest of the world [2,3]. Yano [4] has reported on disease in China, including excess mesotheliomas in chrysotile-only exposed populations. Pang and colleagues in Qingdao [5] have reported on excess lung cancers among non-smoking female asbestos factory workers, and Frank [6] has reported on radiologic findings from several Chinese asbestos factories. There have been other studies of Chinese workers as well [7, 8].

Analysis of numerous samples of Chinese-mined asbestos revealed almost all had only chrysotile as the asbestos component [9]. It is these materials which are predominantly utilized in China.

Methodological Difficulties

There are a number of methodological difficulties in assessing the time impact of asbestos disease in China. These include differences in radiological availability and assessment, frequent use of strictly clinical diagnosis, infrequently obtaining and assessing of pathological materials, and lack of long-term retention of medical records, especially after death. When persons die, their records, including any X-rays or tissue specimens are often purged from files and become unavailable for future use.

In China there is use made of an internal set of standard films rather than the more widely used set put together by the ILO. While not inherently causing any difficulties, there may be some overreading of pleural changes. X-rays of workers are not required on any type of regular basis, may be done irregularly, and with the utilization of older equipment that does not always fully allow for assessment of changes, the quality of films may be sub-optimal.

In contrast to Europe and North America, there is no system for access to pathologists with considerable experience in assessing tissue for mesothelioma, often a difficult diagnosis to make. Coupled with a far fewer number of biopsies taken, it is likely that many of these cancers are misdiagnosed. Adding to this potential diagnostic dilemma is that there is a high prevalence of tuberculosis endemic among the Chinese population [10], and this may lead to presentations of pulmonary disease that are not always correctly diagnosed.

Future Research

There are certain questions regarding asbestos disease that can perhaps best be answered by further studies in China. Chief among these is the suggestions in the literature [11] that certain female cancers such as cervix and uterine malignances may be elevated following exposure to asbestos. Given the considerable number of women working in asbestos product factories this may be a matter that can be resolved by work in China. In cities such as Qingdao, where the existing data for underlying rates of disease among the population is good, such comparisons might well be made.

While a clear relationship between tuberculosis and silica exposure has been well documented, although the mechanism for such interaction not being well understood, the study of tuberculosis among asbestotics might help with clarifying this question.

A last area of great concern deals with the well documented synergism between smoking and excess lung cancer among asbestos exposed populations [12]. In China, greater than 80% of males are smokers [10], and with the addition of exposure to asbestos an especially large epidemic of lung cancers can be expected among such doubly exposed individuals. Methods to

reduce smoking rates in China would have great value for many, but especially for those also exposed to asbestos.

In closing, note should be made of the increasing number of countries that have totally banned the uses of asbestos, even from countries where it had been mined and used locally. As noted above, considerable amounts are mined and used in China [1], representing a significant economic niche. Nevertheless, the increasing worldwide effort to ban the use of asbestos, and the calls for an international ban on its use, should be carefully considered in China and extended into that country so as to more fully and completely protect workers [13]. Although there may be an initial cost increase to use safer products, there can be great savings in the years ahead with the reduction in the development of asbestos-related disease cases, and at considerable long-term cost savings.

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