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Dr. Joseph L. Goodman
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Dear Joe:

It is my personal opinion that a person with diagnosed asbestosis should not continue to work in an occupation which exposes him to asbestos dust containing respirable fibres. As long as there is any airborne asbestos dust in the work environment, there may be some small risk to health.

Having expressed my personal opinion, I think that it might be worthwhile to explore the alternatives. When dust concentration is held constant the prevalence of asbestosis is highest amongst those with the greatest duration of exposure. Asbestosis results because of accumulation of dust in the lungs over a period of time. However, some of the dust is removed from the lungs by the normal clearance mechanisms or by being dissolved in body fluids. Consequently, if it is assumed that none is removed and exposure is limited accordingly, a safety factor is thereby incorporated. In other words, if the present dust levels are such that they have not been associated with evidence of asbestosis in those exposed to them for a substantial period of time, they are unlikely to aggravate the disease already present resulting from prolonged past-exposure to substantially higher levels held constant over a period of time. The present standard of 2 fibres/ml (100 fibre/ml years) proposes that one in 100 persons exposed to this concentration for 8 hours per day, 40 hours per week for 50 years will develop the earliest detectable clinical physical sign of bilateral basal (pulmonary) rales. It could, therefore, be postulated that continued employment of already affected persons in occupationswhere the dust counts are below 2 fibres/ml will not produce further lung changes. Doses which give zero responses are never, in fact, known with absolute certainty since the sensitivity of measurements of response is limited. Each person's dose-response line is different with a different threshold and a different slope. It is, however, my personal experience that asbestosis is a progressive

condition even after removal from further exposure and I cannot believe that allowing an asbestosis sufferer to continue working in an asbestos exposed occupation, even if it is below the present standard, will not in some way exagerate his affliction.

With regard to lung cancer, I believe that this is highly correlated with the incidence of asbestosis, but that it probably requires smaller concentrations over a longer period of time to cause it. The additional highly significant co-carcinogenic effect of cigarette smoking makes it difficult to prognosticate in the case of a smoker. I believe that because of the association between lung cancer and asbestos exposure it would be unwise to allow a person suffering from asbestosis to continue to be exposed, even to low levels. It is conceivable that asbestos accelerates the last stage in a multi-stage carcinogenic process. The attached paper by Julian Peto may be of interest to you.

Mesothelioma of the pleura in persons solely exposed to chrysotile asbestos is very rare. Nevertheless, the dose required to produce this disease appears to be far less than that required to produce lung cancer, especially when it occurs in the absence of asbestosis. The dose induction period, however, is very long and may be 20-40 years. It is unlikely that low levels of exposure after the diagnosis of asbestosis will continue for long enough to produce mesothelioma de novo, because of the cumulative dose already acquired. Nevertheless, because of the uncertainties involved and because I deprecate increasing the lung burden of asbestos in a person already suffering lung damage from exposure to it, my opinion is that further exposure should not be allowed.

Medical surveillance of asbestos workers should aim at detecting the earliest biological effects of exposure in order to remove people from further exposure in the hope of preventing progression to the full-blown syndrome of asbestosis. I am afraid that there is not adequately documented epidemiologic evidence to consider which allows one to determine at what stage progression could be arrested by cessation of exposure. In my experience, asbestosis was certified in 50% of "suspected cases" within a period of 3 years from date of first suspicion, even after removal from further exposure.

I hope I have managed to answer your question. The diagnosis of asbestosis is in your hand and, therefore, the final decision is yours in the long run.

Best wishes,

Milton C. Lewinsohn

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