411. Old timers still around: fibres and inorganic dusts

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Trends in asbestosis mortality and asbestos consumption in the U.S.

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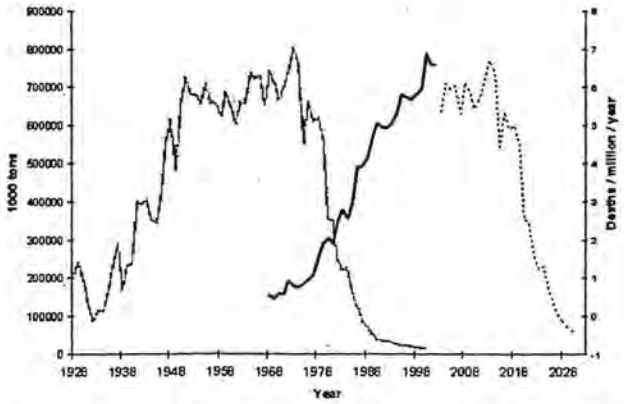
Mortality trends in the U.S. show that deaths due to asbestosis are increasing, while deaths related to other pneumoconiosis are declining (MMWR 2004;53:627-632).
Objective: To analyze the association between asbestos consumption and asbestosis mortality trends from 1968-2002.
Methods: We undertook linear regression between asbestos consumption since 1900 (1000 metric tons) as the predictor variable and mortality from asbestosis from 1968-2002 (age-standardized rate/million population/year). The predictor variable was progressively lagged by annual increments from 0 to 60 years and the correlation assessed for each lag period. The regression model having the maximum correlation was considered the best prediction line, and was used to derive extrapolated estimates of future mortality based on more recent asbestos consumption data.
Results: Maximum correlation (r =0.94) between consumption and mortality rates was achieved using a lag period of 39 years. The graph below shows the relationship between asbestos consumption (....), actual (–), and predicted (—) asbestosis mortality.



Conclusions: This analysis, which employs only past consumption and ignores other factors which might influence future mortality, indicates that death rates from asbestosis are not expected to decrease in the next 10–15 years.

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Trends in mesothelioma diagnosis in Australia between 1993 and 2003

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The aim of this study was to analyse data from 1184 subjects referred to the Dust Diseases Board of NSW with a diagnosis of malignant mesothelioma who died between 1993 and 2003 in order to assess the latency period, survival from diagnosis plus the effect of histological type on survival. By Act of Parliament only cases with a history of occupational asbestos asbestos exposure could be accepted. All were confirmed by histological examination of a biopsy. They included both pleural (1125, 95% of the total) and peritoneal (59, 5%) mesotheliomas. Data was expressed as mean±1SD. There was no significant difference ($p>0.05$) between age at death in 1993 (68±12 years) and 2003 (69±14years), in the latency period between first exposure and death (42+8 years in 1993, 40±11 years in 2003), in age at which first exposure to asbestos occurred (25±6 years in 1993, 22±5 years in 2003) or in survival from time of diagnosis (9±3months in 1993, 10±4 months in 2003). Epithelial mesotheliomas occurred more commonly (45%) than did mixed (30%) or sarcomatoid mesotheliomas (15%) and mean survival for those with epithelial or mixed tumours (11±4 months) was greater ($p<0.05$) than for those with sarcomatoid change (8±5months). Those surviving for more than 2 years from the time of diagnosis (5%) more commonly had epithelial tumours (67%). Only 7 subjects survived for more than 5 years and all of these had epithelial mesotheliomas. Pleural mesotheliomas occurred moe comonly on the right (55%) than on the left (45%). Of those who died in 2003 (125) only 8 (6%) had pleural plaques identified on a CT scan of the thorax.

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Orally given chrysotile asbestos affects lungs and pleura of rats

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Occupational and environmental asbestos exposure by the way of inhalation causes pulmonary diseases such as asbestosis, pulmonary and pleural malignancies, pleural fibrosis and calcifications. This study is designed to show the effects of orally taken asbestos to the lungs and pleura.
Fifty one rats were separated into 3 groups. Group A(n:18) had taken 1.5 gr/lt chrysotile asbestos with water. Group B(n:18) had taken 3gr/lt asbestos by water and Group C(n:15) as a control group had taken only water. Asbestos water solution or water was given to the rats with baby's bottle by sucking. At every 3 months 6 rats from group A and B; 5 rats from group C were sacrified. Their lungs, pleura, liver, spleen and mesenterial lymph nodes were taken for histopathological examination. Results are seen below.

	6 months			9 months			12 months		
	A (n:6)	B (n:6)	C (n:5)	A (n:6)	B (n:6)	C (n:5)	A (n:6)	B (n:6)	C (n:5)
LUNGS AND PLEURA									
Congestion	4	5	-	5	4	-	4	-	-
Bronchiolitis	2	3	-	4	2	-	1	-	-
Microabscess	1	-	-	-	-	-	1	-	-
Bronchopneumonia	2	-	-	-	-	-	1	-	-
Hemorrhage	-	-	-	3	-	-	-	-	-
Ischemia	-	-	-	1	-	-	2	-	-
Eosinophilic infilt.	-	2	-	-	1	-	-	-	-
Interstitial fibrosis	-	1	-	-	3	-	-	-	-
Mesothelial proliferation	3	3	-	2	4	-	4	6	
Asbestos bodies	-	-	-	2	3	-	2	5	-
SPLEEN									
Asbestos bodies	4	5	-	3	4	-	6	5	-

As a conclusion; it is shown that orally taken asbestos fibrils that were ingested from gastrointestinal system went to the lungs and pleura probably by lymphohemathological way and made some changes that might lead malignancies. Asbestos bodies which were seen in the spleen is the evidence of the involvement of reticuloendothelial system.

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Effects of the fish oil on the immune and oxidative response in asbestos and man-made-mineral fibres (MMMF) instilled rats

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Aims: To investigate the effects of the fish oil on the asbestos and MMMF - induced immune and oxidative reactions, that could be involved in developing of the pulmonary diseases. Asbestos - activated macrophages (AMs) release several factors, such as: interleukin-1(IL-1), tumor necrosis factor(TNF), reactive oxygen species (ROS). Exposure to the MMMF is possibly associated with respiratory effects.
Methods: In vivo experiment was carried out on the 90 Wistar rats, that were divided into 6 groups as following: 1. Controls; 2. Fish oil -group; 3. Asbestos – group; 4. MMMF-group; 5. Asbestos + Fish oil –group; 6. MMMF+ Fish oil – group. The animals were sacrificed at 6 months and bronchoalveolar lavage was carried out. The following parameters were assessed: 1. 3HTdR incorporation test; 2. IL1- assay; 3. TNF- assay; 4. Chemiluminiscence assay; 5. Lipid peroxides.
Results: Significantly increased values of the IL-1, TNF and ROS were detected in the Asbestos and MMMS – groups in comparison with controls, and a partial reversibility of these parameters was noted in the 5 and 6 groups with fish oil administration.
Conclusions: Our results point out the following findings: 1.Asbestos and MMMF interfere with immune and oxidative reactions; 2. Fish oil modulates immune response and interfere oxidative reactions in the asbestos and MMMF instiled animals; 3. Fish oil may have an important protective effect in asbestos anf MMMF exposure by its immunomodulatory and antioxidant effects.

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Idiopathic pulmonary fibrosis mortality in the United States: is there any evidence of occupational risk?

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Metal and wood dust exposure may be occupational risk factors for idiopathic pulmonary fibrosis (IPF) (Hubbard R. Eur Respir J 2001;18:119s-121s).
Objectives: To investigate mortality due to IPF and by specific employment (by industry).
Methods: We analyzed mortality data from the National Center for Health Statistics (all deaths of U.S. residents ≥15 years old listed on the Record Axis) using ICD-10 code J84.1 - "Other interstitial pulmonary diseases with fibrosis" (Diffuse pulmonary fibrosis, cryptogenic fibrosing alveolitis, Hamman-Rich syndrome, idiopathic pulmonary fibrosis). We derived age-standardized mortality rates (per

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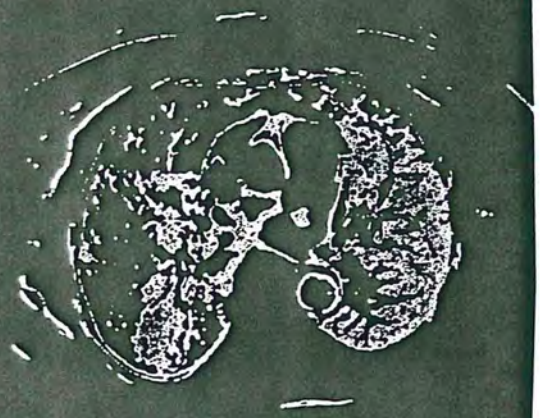

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