Detection rates of lung cancer and asbestos related findings in former asbestos workers in the power industry - Update and follow-up results of the Aachen asbestos surveillance program (ASPA)

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A randomized controlled trial for early detection of lung cancer in smokers in the US showed a reduction of mortality by using low-dose spiral computed tomography (LDSCT). Concerns for the application of LDSCT mainly focused on false positive rates of nodules, which might lead to unnecessary interventions and fears in patients. The aim of our study was to check the feasibility of a risk-adapted surveillance program in former asbestos workers and to describe prevalence and stage of lung cancer cases, mesothelioma and benign asbestos related diseases.

In the Asbestos Surveillance Program Aachen (ASPA) for early detection of asbestos related diseases 8632 persons were enrolled and 7676 were examined after application of a risk model. Initially 188 persons had annual low dose CT-examinations (group A), 1357 had annually (group B) and 6131 persons every three years had chest X-ray (CXR). CT-images were classified using the International Classification for Occupational and Environmental Respiratory diseases (ICOERD) and analysed with a CAD Software.

Prevalence of lung cancer in the first screen was 4.8% (A), 0.6% (B) und 0.08% (C). In the second screen 3.6% (A), 0.4% (B) und 0.04% (C) were detected. In group A 2, in group B 3 and in group C 1 interval cases were found. 63% of all CT-detected lung cancer cases were stage I cases. In group A 491 pulmonary nodules, 22% with a diameter of 5 to 10mm, 3% with a diameter of > 10mm were detected. 41% in group A and more than 900 cases in the cohort had benign asbestos related diseases. Mean survival in group A, B, C was 41.2, 28.6 and 32.2 resp. (A vs. B and C p< 0.05). Mean survival of screen detected cases vs. non screen detected was 35.8 vs. 23.2 months (p< 0.05)

With an interdisciplinary network and specialized experts a surveillance program could be successfully established. Screen-detected cases and especially CT-detected cases benefit with longer survival.

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