



Descriptive Characteristics of Coal Workers' Pneumoconiosis Cases in Turkey

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Dear Editor-in-Chief

Working condition in underground mining are associated with many important risk factors for workers' health such as work injuries and occupational diseases. Coal workers' pneumoconiosis (CWP) is a preventable lung disease caused by occupational exposure to coal mine dust and was observed highly common in coal miners. Respirable coal dust concentration in working area, duration of exposure and free silica content play major role for CWP. Clinical form of CWP may be simple or complicated.

In this evaluation, categories were determined with radiographs classified according to International Labour Office International Classification of Pneumoconiosis, and category 2 and 3 (subcategory $\geq 2/1$) was considered advanced CWP (1,2). The most of CWP cases in Turkey were reported from Zonguldak Hard Coal Basin. According to national statistics of Ministry of Labor and Social Security, 429 occupational diseases were reported in 2009; of all cases, 230 (53.6%) were reported to have respiratory occupational disease and 201 of 230 cases were recorded from coal and lignit production workforce and 191 cases were reported from Zonguldak. In our study, hospital records of 457 coal mine workers who applied to Zonguldak Uzunmehmet Chest and Occupational Diseases Hospital and diagnosed with CWP in 2008 were

evaluated retrospectively. Category 2 and 3 cases were considered simple CWP and the others were considered simple CWP.

Of all cases, 58% were found to have simple and 42% to have advanced CWP. There were not statistically significant difference between simple and advanced cases in accordance with smoking status, tuberculosis, respiratory functions, spirometric parameters, underground working day and opacity type in chest radiographs. However mean age ($P=0.008$), disability ($P=0.001$), disability ratio ($P=0.001$) in advanced CWP cases were significantly higher than simple cases. Although there were significant difference between simple and advanced cases in accordance with underground working day, age at first exposure in simple CWP cases and tenure in advanced cases were significantly higher than the others ($P=0.002$ and $P=0.021$). In all groups, 446 cases (97.6%) were diagnosed as CWP at 10.8 ± 4.7 years after their retirement, and time interval between diagnosis and retirement in advanced cases was significantly higher than simple cases ($P=0.001$).

Disability and disability ratio are correlated with the present situation of the disease and should be improved with the clinical progression. According the Turkish regulations, when the calculation of permanent impairment of an occupational disease

gives the “disability ratio” less than 10%, there is no obligation to pay pecuniary compensation for employers. This creates a distinct disadvantage for category-1 CWP patients. Results of our study are similar with other studies in accordance with prevalence of abnormal spirometric parameters, age at first exposure, tenure and underground working days (3, 4). Our investigation also shows that 97.6% of all cases were retired and they were diagnosed with CWP at 10.8 ± 4.7 years after their retirement. Because of this unexpected situation three probabilities should be take into consideration: 1) Basic mechanism of CWP is inflammatory reaction (5,6) and inflammatory process can be seamlessly continuing after starting of dust exposure, 2) Periodic follow-up examination and medical evaluation at the end of working of miners can be insufficient to determine the CWP cases, 3) It is known that there are some relatively small mines in the basin, and miners can work in different mines informally after retirement and cumulative effect of coal dust exposure can be continuing. Although first probability is relevant with pathogenesis of CWP, second and third probabilities are relevant with basin realities and problems of particular urgency.

As a conclusion, prevention and control of CWP need not only engineering practices such as ventilation or wet operation but also good medical practices such as follow-up and severance medical examinations. Furthermore, countries should support the engineering and medical practices with auditing of occupational health and safety applications in the workplace and legal arrangement for reduction of dust levels in mines, impediment of

informal working and higher education of occupational physicians.

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