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Coal Mine Accidents

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Abstract

The underground coal mining, in terms of fatal and injury accidents, has the first place among all businesses due to "spontaneous combustion of coal" and "presence of methane gas" in coalmines. In May 2014, the most casualties (301 people) of recent years occurred in the Soma Eynez mining quarry that accounts for almost half of the death of the last 30 years. The Turkish Thoracic Society Environmental and Occupational Lung Disease assembly, aimed to determine the causes of coal mine accidents and analyze what should be done to prevent occurrence of accidents and casualties.

KEYWORDS: Coal mine, mine accidents, respiratory emergencies

As in all businesses, it is primarily necessary to take precautions against occupational accidents and occupational diseases in the mining industry. Any production process that prioritizes profitability, but ignores human health and life is unreasonable and unacceptable. Mining industry is on first position among all businesses with regard to accidents resulting death or personal injury. According to the Report of Parliamentary Research Commission in May, 2010, the rate of all occupational accidents and fatal accidents is 6-7 times higher in the mining industry than in other industries [1].

Underground coal mining has the highest rate of fatal accidents and injury in mining industry. This is a result of spontaneous combustion of coal and presence of methane in the structure of the lode, which is not seen other mining industries. In the past, caged birds were carried into the mines in order to detect any gas leakage. If the birds died, it was concluded that the oxygen present in the mine was insufficient or toxic gases, such as methane, had increased in the mine-atmosphere and workers exited the mines. However, at present, both situations can be detected earlier with advance in technological facilities, and the use of risk-reducing technologies is quite common. The occurrence of these accidents and casualties despite technological advances clearly indicates that adequate precautions have not been taken.

When we examined the accident-type that caused many fatalities, it was seen that firedamp explosion, wreckage, fire, and landslide lead to more casualties. All accidents, except the one that occurred in Küre, Kastamonu (September 2004) occurred in coal mines. Moreover, all these accidents occurred in underground coal mines, except for the one in Çöllolar (Afşin, Elbistan) in February 2011. The number of deaths (301) in the accident that occurred in the Soma Eynez Mine on May 13, 2014 constitutes almost half the total death toll from all accidents, in the last 30 years [2]. Soma disaster caused guilty conscience in the society and inevitably led the issue to become current again. The accident that happened in Ermenek, Karaman in October 2014 has proved that no lesson has been learned from both the Soma disaster and previous accidents yet. The chain of neglects has continued, and there is still a long way to go.

Risk is the product of the probability of a hazardous event and the loses in case of its occurrence [2]. The spontaneous combustion of coal is a frequent occurrence (10 fire events, the longest of which lasted for 24 days and happened between 1998 and 2002), and the methane gas content is high in the underground coal mines of Soma, which also increases the risk for accidents [2]. Keeping in mind that 800 workers would be affected in case of a fire, it is apparent that the risk is high. However, production continued despite this fact. In fact, mining based on labor force is almost non-existent in developed countries; however, as seen in the Soma incident, production continues using conventional old methods. In such situations, the numbers of workers should be increased to improve production because it is obvious that this will cause safety issues and increase the risk.

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A considerable number of deaths in accidents occur during search and rescue operations. For reducing the number of casualties to the minimum, it is important to be prepared for such accidents, make conscious decisions on actions to be carried out at the time of incident, and effectively implement these decisions. A typical example of this case is the Kobe earthquake (1995). In this disaster, the fires increased the number of deaths due to late cut-off of electricity.

The issues on occupational health and safety in the mining industry in Turkey were addressed in many reports prepared before the disaster and solution proposals were presented [1,3,4]. Since silicosis, associated with silica exposure, can develop in mines and silicosis induced by both silica and coal dust and coal worker's pneumoconiosis can occur in coal mines, the accidents in mines are always included in the discipline of thoracic diseases. Complications including asphyxia, carbon monoxide intoxication, acute inhalation injury due to inhalation of combustion products, and late complications of acute inhalation [5] are also among the basic topics of thoracic diseases.

In this series that we conducted at the Turkish Thoracic Society Environmental and Occupational Lung Diseases group, accidents in coal mines were examined and evaluated from different aspects. For this purpose, titles were given as "Coal mining in Turkey"[6], "The history of coal mining"[7], "Causes of mine accidents"[8], "Do's and don'ts in search and rescue operations"[9], "Emergencies that can be encountered in mine accidents and their management"[10], "The role of occupational physician"[11], and "Precautions to be taken for the prevention of mine accidents and related respiratory emergencies"[12].

I would like to thank everyone for their contribution to this series, and I wish not to experience preventable accidents, such as in Soma, Ermenek, or other occupational accidents, and occupational diseases again.

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