OA Maced J Med Sci **electronic publication ahead of print,**
published on December 11, 2016 as http://dx.doi.org/10.3889/oamjms.2016.139

ID Design 2012/DOOEL Skopje, Republic of Macedonia
Open Access Macedonian Journal of Medical Sciences.
http://dx.doi.org/10.3889/oamjms.2016.139
eISSN: 1857-9655
Book Review

Jordan Minov. COPD and the Workplace. New York: Nova Science Publishers, Inc.; 2016. 83 pages; ISBN 978-1-63484-249-5

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Citation: Karadzinska-Bislimovska J. Jordan Minov. COPD and the Workplace. New York: Nova Science Publishers, Inc.; 2016. 83 pages; ISBN 978-1-63484-249-5. Open Access Maced J Med Sci. http://dx.doi.org/10.3889/oamjms.2016.139

Keywords: chronic obstructive pulmonary disease (COPD); workplace exposures; tobacco smoke; occupational exposures.

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Received: 08-Dec-2016; **Revised:** 10-Dec-2016; **Accepted:** 11-Dec-2016; **Online first:** 11-Dec-2016

Funding: This research did not receive any financial support.

Competing Interests: The authors have declared that no competing interests exist.

Abstract

PURPOSE: The aim of this monograph is to present a role of the workplace exposures on the development and progression of chronic obstructive pulmonary disease (COPD), the joint effect of the workplace exposures and tobacco smoke in its development and progression, the diagnostics of the COPD related to occupational exposures, as well as its management and prevention.

CONTENTS: The publication consists of seven chapters supplemented by a list of abbreviations and index of terms. The cited literature at the end of the monograph obtains scientific support to the elaborated professional knowledge.

CONCLUSION: The monograph COPD and the Workplace presents a comprehensive literature dedicated to this problem and a serious effort for improvement of detection and management of COPD related to workplace exposures by medical professionals and its prevention.

Field of medicine: Respiratory medicine.

Audience: Occupational medicine specialists, pneumologists, internists, general practitioners.

Purpose: The aim of this monograph is to present a role of the workplace exposures on the development and progression of chronic obstructive pulmonary disease (COPD), the joint effect of the workplace exposures and tobacco smoke in its development and progression, the diagnostics of the COPD related to occupational exposures, as well as its management and prevention.

Content: The publication consists of seven chapters supplemented by a list of abbreviations and index of terms. The cited literature at the end of the monograph obtains scientific support to the elaborated professional knowledge.

Chronic obstructive pulmonary disease (COPD) is a major cause of disability and is the fourth leading cause of death throughout the world. Although the cigarette smoking is the major and the best-studied causative factor of COPD, there is consistent evidence that a substantial proportion of COPD cases can not be explained by smoking. Other noxious particles and gases, such as workplace dust, gases, vapours or fumes, indoor air pollution from burning biomass fuels from cooking and heating and urban outdoor air pollution are important risk factors of COPD. According to the actual knowledge, 15-20% of COPD cases are like to be caused or made worse by work, around 4,000 COPD deaths every year are related to workplace exposures and 40% of COPD patients are below retirement age and a quarter of those below retirement age are unable to work at all.

In the first chapter the key points related to COPD, including definition, epidemiology, burden, risk factors, pathogenesis, pathology, pathophysiology, clinical presentation, diagnosis and assessment, and management, are presented.

The several ways by which the workplace exposures may influence the course of COPD, like causing COPD, modifying the effect of tobacco smoke in causing COPD, and accelerating the progression and severity of the disease in the subjects with established COPD, are explained in the second chapter.

In the third chapter, the workplace exposures as a causal factor of COPD are presented. There is sufficient epidemiological evidence from both population-based and workplace-based studies that workplace exposures to coal dust, silica dust, welding fumes, cadmium fume, cotton dust, agricultural dust and wood dust may be associated with the development of COPD in previously healthy subjects. Also, further evidence that majority of the workplace agents mentioned above are capable of inducing COPD (i.e. obstructive bronchiolitis and/or alveolar destruction) comes from experimental studies, particularly in those carried out in an animal model.

Across the world, cigarette smoking is the most encountered risk factor for COPD with a clear dose-response relationship. The combined effect of tobacco smoke and workplace exposures is explained in the fourth chapter. Results from many studies (both population-based and workplace-based) indicated that the joint effect of tobacco smoke and workplace exposures to dust, gases, vapours and/or fumes in the COPD development is greater than their additive effect.

Despite as a causing factor, workplace exposures may influence the course of COPD also as a factor that accelerates the rate of ventilatory function decline in the subjects with established COPD (Chapter 4). The existing evidence suggests that the workplace exposures in many professions (construction, mining, metallurgy, welding, textile manufacture, agriculture, etc.) may worsen the symptoms and lung function loss in the subjects suffering from COPD that is independent of smoking and ageing. As in the case when the workplace agents are causative factors of COPD, the mechanism underlying this effect still are not fully understood.

In the fifth chapter, the diagnostic workup for COPD-related to workplace exposures is presented. The diagnostics are based on standard diagnostic procedure and confirmation of the work-relatedness of the disease. The standard diagnostic procedure of COPD includes diagnostic tests recommended by the actual guidelines. As till today there is no diagnostic tool able to confirm the workplace exposure as a causative factor of the disease (in contrast to occupational asthma), the workplace reasons for persistent and progressive airflow limitation should be assessed by detailed occupational history, as well as by assessment of the patient's workplace (Chapter 6).

In the seventh chapter the actual principles of management and prevention of COPD related to workplace exposures are presented. The management of occupationally-related COPD includes pharmacological and non-pharmacological treatment of the disease, workability assessment and compensation due to disability caused by the disease. As occupationally-related COPD may be severely disabling disease, its prevention must be the primary tool for decreasing the incidence of morbidity, disability and mortality. Primary prevention (i.e. engineering control, personal protective equipment, education, etc.) should be designed to abate workplace hazards before any damage in the exposed workers has occurred. Secondary prevention addresses early detection of the disease and early intervention to minimise its severity and complications, whereas tertiary prevention aimed at treatment and rehabilitation of clinically manifested COPD.

Highlights: As the first publication of this kind in our country, the monograph gives a clear scientific impulse to the development of the professional knowledge related to COPD. Due to the connection of the actual scientific knowledge and specified practical experience, this book will certainly provoke attention to medical practitioners from different disciplines who encounter COPD in their everyday practice, thus becoming a real help in detection, management and prevention of occupationally-related COPD.

Conclusion: COPD represents one of the principal demands of the public health at global level due to high morbidity, early mortality and huge costs to health systems. Workplace exposures play a significant role in the development of the disease and its progression. On the other side, COPD related to workplace exposures, like other occupationally-related diseases, is potentially preventable. The monograph *COPD and the Workplace* presents a comprehensive literature dedicated to this problem and a serious effort for improvement of detection and management of COPD related to workplace exposures by medical professionals and its prevention.