

## Review Article

## Occupational Cardiovascular Disorders

Seyedeh Negar Assadi<sup>1\*</sup>, Habibollah Esmaily<sup>1</sup><sup>1</sup>Social Determinants of Health Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

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**Abstract:** *Objective:* Occupations and jobs have risk factors for medical disorders and diseases. Many of them are modifiable. Occupational exposures are one of the modifiable risk factors. *Methods:* It is a review article with search in related books, journals and websites to occupational medicine. Disorders, risk factors and preventive methods are found. *Results:* Chemical agents and physical factors are known but psychological stresses are important in recent decades too. Some studies researched in risk factors of cardiovascular disorders. Chemicals are very important, different type of them can cause cardiovascular disorders. Prevention from their effects is very necessary. This work could be done with engineering controls and personal protective equipment. *Conclusion:* Chemical agents and physical factors are known but psychological stresses are important. Prevention from their effects is very necessary.

**Keywords:** Occupations, Cardiovascular disorders, Factors.

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## INTRODUCTION

Cardiovascular disorders are important in the health level of people in society [1, 2]. The most percent of mortality is from cardiovascular disorders [3, 4]. These diseases have many risk factors. In this article, the author discussed occupational risk factors for cardiovascular diseases and the methods for prevention from their effects [5-7]. Chemical compounds and physical factors are known as occupational cardiovascular risk factors but psychological stresses are important too [8, 9]. Cardiovascular disorders can result in mortality or morbidity [10, 11].

Some studies researched in risk factors of occupational and none occupational cardiovascular disorders. Chemicals are very important, different type of them can cause cardiovascular disorders. Carbon monoxide, solvents, metals, pesticides, carbon disulfide, organic nitrates, air pollutants, and toxic gases are harmful to the cardiovascular system. Physicals [12] such as noise, vibration, and weather temperature especially coldness. Psychological or occupational stress is an important item in the etiology of diseases, especially cardiovascular disorders [13, 14].

## METHODS

In a review, article author searched in Pubmed, Scopus, Google scholar, occupational safety and health

administration (OSHA), national institute for occupational safety and health (NIOSH), world health organization (WHO), international labor organization (ILO), in literature and occupational and toxicological medicine.

## RESULT

Chemical agents and physical factors are known but psychological stresses are important in recent decades too. Some studies researched in risk factors of cardiovascular disorders. Chemicals are very important, different type of them can cause cardiovascular disorders. Prevention from their effects is very necessary. This work could be done with engineering controls and personal protective equipment.

## DISCUSSION

Chemicals; carbon monoxide is a toxic gas. It is an asphyxiator agent. This agent can cause disruption in cell respiration. It is produced from incomplete combustion. Carbon monoxide had cardiovascular and neurological damages.

Carbon monoxide can cause cardiac arrhythmia, ischemic heart diseases, and cardiomyopathy. It can cause neurological problems; moving problems such as parkinsonism. Toxicity may be acute or chronic had effects on the heart and brain. With the measurement of carboxyhemoglobin (COHb),

the intensity of exposure and toxicity is determined. The level of COHb is more in smokers than nonsmokers. In exposure to carbon monoxide, symptoms and signs of toxicity are demonstrated.

Headache, nausea, confusion, and hypertension are some of them. But in treatment; oxygen therapy is very important [6].

Carbon disulfide is the other chemical that can cause cardiovascular disorders too. This chemical is used in different industries such as viscose rayon production, solvents, and paint production. This toxin has its effects on arteries of organ systems. The heart, brain, kidney, and retina of the eye are some of these organs.

This chemical had effects on nerves and the brain. Neuropathy is an important effect too. Ophthalmoscopic examination of the retina can help medical practitioners for periodic examination of a worker who is exposed to carbon disulfide. Changes in retina vessels are seen and can be followed. It is absorbed from respiration and skin contact in the workplace. It is a dangerous material for workers who are exposed but exposure can be modifiable.

Organic nitrates are chemicals that are dangerous for the cardiovascular system. It is used in drugs and explosives. It is transferred from rubbery gloves. Prevention from absorption is recommended. Cotton gloves must be worn. Cotton can be prevented from skin absorption. Organic nitrates have some effects on health. These chemicals dilate the vessels and can cause headaches, flushing, hypotension, and tachycardia. But these materials have chronic effects such as cardiovascular diseases. Solvents are chemicals that have health effects on many organ systems. These materials are useable and applicable in many situations. Health effects will be on cardiovascular, nervous systems, skin, kidney, liver, lung, fetus, cellular division and development, and blood cells [6].

Pesticides such as organophosphorus and carbamates have health effects such as cardiovascular effects. Other chemicals are metals. Lead and cadmium can cause hypertension. Cobalt can cause cardiomyopathy. Arsenic affects cardiac rhythm and coronary vessels. Antimony is harmful to cardiac rhythm [6].

Physicals are important because of many health effects such as cardiovascular effects. Noise is a physical factor and can cause rhythm disturbances, hypertension, hyperlipidemia, and ischemic heart diseases. Noise is a stress for the body and mind. It must be controlled by engineering controls, administrative controls, and personal protective equipment. Vibration constricts the vessels and can

cause blood circulation disruption. It is harmful and dangerous. Vibration must be controlled.

Coldness affects blood clothing. Hypertension is more in cold weather than in warm.

Occupational stress is an important item in the etiology of occupational heart diseases. Psychological stresses in organizational, career development, role, task, and environment. Organizational stresses must be from sudden changes in the workplaces, inadequate communication between personnel, the conflict between the aim of personnel and organization. Career development is another risk factor that can cause occupational heart diseases. Not finding a Job promotion opportunity is a risk factor for occupational heart diseases. Role ambiguity is important that the person must not have. The role must be clear and has a definition. Role conflict is important too because of its effect on the cardiovascular system [15, 16].

Prevention and control are important in occupational situations. Physical examination of workers is necessary for the preplacement, periodic examination, fitness for work, return to work, impairment, and disability exams. In exams are focused on related organ systems [17-20]. Substitutions of safe materials, engineering controls, administrative controls, and personal protective equipment and devices.

## CONCLUSION

Cardiovascular disorders have two types of risk factors; occupational and none occupational risk factors. Occupational risk factors can be chemical, physical, and psychological. These are must be controlled and workers should be examined.

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