

CARDIOVASCULAR AND PROFESSIONAL DISEASES IN WORKERS IN WOOD INDUSTRY

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Abstract: *Cardiovascular and occupational diseases among workers in the timber industry are very common. These diseases arise due to the nature of the work, the conditions at the workplace, stress, a great physical and mental effort, poor and irregular diet, smoking, alcohol use, which are among the factors that are very present in these workers. The most common diseases of the cardiovascular system are heart diseases, blood vessels, high blood pressure, diseases of the musculoskeletal system (joints, muscles and bones), skin diseases, allergic diseases, diseases of the hearing, vibrating illness, injury at work. The main task is to improve the working conditions of these workers and reduce the risk factors that lead to these diseases.*

Keywords: *occupational diseases, heart, blood vessels, hypertension, vibration disease, joint disease, hearing loss, smoking, fatigue, occupational health and safety.*

1. INTRODUCTION

Occupational disease is a disease or a collection of diseases that have arisen as a result of the impact of adverse factors, factors in a workplace, which caused acute, long-term or permanent effects on health of the person-worker who is sick, who is doing his job in this workplace and under such operating conditions and circumstances. For the occurrence of occupational injuries or illnesses at work, several factors are responsible. First of all, these include:

Personal factor of the worker- (carelessness of workers, lack of professionalism and lack of training for a particular job, lack of concentration due to a variety of personal, family and business situations, physical disability in terms of disproportionate power required and the available physical potential workers for the job, etc.).

Risk factors - The work of these workers in the timber industry is too dangerous to perform, and always carries a high risk of injury and the emergence of occupational diseases. Occupational disease can occur in almost all workplaces, and most often is encountered in carrying out extremely dangerous and stressful jobs (miners, workers at extreme altitudes, forestry workers, workers in the timber industry, cutters, workers in the chemical industry,

in the nuclear industry, working with infectious patients, work in microbiological laboratories, especially working with a very virulent and dangerous viruses and bacteria, working with X-ray radiation). All these are factors of danger and are interpreted as risk factors for occupational diseases. There is always needed also an activating factor of dangerous factors for the occurrence of injuries or diseases (opening of boilers under pressure in heating, dryers, steaming, moving the logs in stock, toppling over logs in forest workers, the extraction of the lighter at the mine clearers, deactivation of the mine, working without adequate protection from virus causes and other infectious diseases). When analyzing and designating a disease as a occupational disease we must carefully analyze the disease itself, its factors and specificity, as well as workplace conditions at the workplace, factors of physics degree of professionalism and safety at work, if there is an injury at work in or outside the workplace. All this should be well studied and analyzed, under which conditions in the workplace that worker used to work and why the problem occurred with the injured worker and the injured worker should be thoroughly reviewed. Only a detailed review of both workers and the workplace can give us the real cause of injury, and therefore enable us to take safety measures and prevent such or similar violations from occurring again.

2. THE CONCEPT OF OCCUPATIONAL DISEASE

These illnesses include all states that have arisen due to unfavorable conditions on the job, and the types of work in the workplace that a worker performs. The term diseases can be considered as an occupational disease in a narrow sense, or occupational disease in a broad sense.

Occupational diseases in the narrow sense are diseases whose causes are mainly related to work which the employee performs at his workplace.

Occupational diseases in a wider sense are all diseases that cause adverse effects in the workplace, but also risk impact outside the workplace. [1]

Occupational diseases may occur in many workplaces because of different circumstances. The most common occupational diseases still occur on specific tasks which are also difficult and dangerous to human health. A few centuries ago there had been known occupational diseases of workers in coal mines. They used to very often and very soon get infected by from respiratory diseases, bronchitis, asthma, pneumokosis (lung disease that occurs due to prolonged and heavy coal dust in mines of brown coal). As an occupational disease in the mercury mines there were often signs of intoxication with this highly toxic metal, which are significantly downplayed the working ability of miners, and often led to complete loss of the ability to damage the skin, lungs, blood elements and CNS. As an occupational disease there are common diseases among health workers such as X-ray technicians and radiologists. It is true that today they are fairly rare diseases because of better safety at work, better appliances that give minimum radiation and a greater knowledge of these diseases. It is known that a major disease and infectious disease epidemiology, microbiologist who work with highly infectious patients, or with the material in the microbiological work and instruments which are used during an intervention. They used needles and syringes that were not for single use, but they washed and sterilized them, and thus there were frequent stings with nurses, and because of the transferred infectious material in these instruments and in the sting had frequent occurrence of diseases, a mostly from infectious jaundice.

The most common causes of cardiovascular and occupational diseases among workers in the timber industry is the disproportion of working capacity of workers and the needs of the workplace to perform this type of work. It is often seen that workers do not have enough physical, occupational, conditional and professional skills that the difficult and demanding job requires. The microclimate conditions are not adjusted to endurance of workers, reducing their impact on work efficiency. As factors for the occurrence of occupational disease we can indicate large differences in temperatures, humidity, air flow, (wind and drafts), snow and rain, the brightness which is substantially reduced in the halls and in the forests where workers perform these difficult tasks. Working conditions are unfavorable due to higher altitude, high inclination of steep and unstable land. These conditions are often made worse due to natural disasters when working outdoors. In the workplace, the worker is exposed to other disadvantages, such as stress, vibration, noise, movement of powerful machines for the transport of logs in the forest or to process logs in the working halls. Safety at work is often not adequate and insufficient, but some workers are contributing, as they improperly use it or not even use it, although it is required by law, but it is often considered voluntary. Labor productivity is often low, so the payment for these jobs are low too, so that these workers often work at additional duties for the sake of higher earnings, as more and more exhausted workers and lead to health damage.

Overview of occupational injuries

Injuries in the timber industry are quite common and almost most often in relation to other jobs. They account for about 10% of the total of all occupational injuries. The most common injuries are at the workplace and by frequency in most cases with the cutters in the forests 48%. Per 1000 workers a year about 120 workers are hurt, and injuries have the character of injuries in the workplace in about 95%. This ratio is about 1.5 times higher than the workers who work in wood processing, in the halls and in enclosed spaces. The most common injuries are due to a fall of the worker, falling tools (axes, chainsaws or saws), falling trees, logs, boards, and causing injuries to muscles, ligaments, bones and other body parts. These injuries are most common at the start of the working time at about 9 to 10 HRS and at the end of the day, about 14 to 15 HRS, usually at the beginning and end of the week. Here dominates as a cause of injury overall fitness and general psycho-physical state of workers, especially workers who work with machines and chain saws. Most of the injuries are with youngest and inexperienced workers aged about 26 years and work experience of one year, as well as workers over 60 years of experience and over 25 years of service. Most of the injuries of the workers happen in the early spring months, March and April and in September. In these injuries usually suffer hands and fingers about 16%, 15% legs, chest 5%. All of these injuries can be divided into light, heavy, and some of the serious injuries leading to the death of 0.5%. [2]

Occupational diseases of workers in the timber industry are the most common chronic diseases of the joints, damage to meniscus, cuts leading to contracture of muscle and paresis of the nerves, hearing loss due to noise, vibration disease, diseases of the hand due to vibrations (for the cutter), diseases and defects of the skin, allergic diseases, bronchitis, asthma and cardiovascular diseases.

A vibration disease affects about 30% of workers in the timber industry. Hearing disorder-

der is about 20% due to excessive noise or poor protection.

Employees working in these conditions usually go in early disability pension and the percentage is large and is around 30%. This is a big problem and warns of the seriousness, gravity and insecure jobs of workers in the forest industry. These workers usually before the start of the working time perform some physical tasks which are physically exhausting. They get up very early, on average, about 5 o'clock in the morning, usually walk to the workplace or to the collection of transport, take an early breakfast, smoke, drink coffee and often, and take an average of up to ½ oz of alcohol approximately 5% of them.

These activities in workers spend a certain amount of energy, and when they leave and return to the workplace usually the energy consumption ranges from 2600 to 4000 KJ, which is an additional burden on these workers who perform heavy work otherwise. [3] It has been shown that about 6.2% of injury occurs in the morning hours at about 6 o'clock, which is the so-called injury in non-working time.

3. CARDIOVASCULAR DISEASES IN WORKERS IN THE WOOD INDUSTRY

Out of cardiovascular diseases among workers in the timber industry usually occur the following diseases: hypertension, ischemic heart disease, cerebrovascular disease, varkožitets, thrombophlebitis and other diseases of blood vessels of the extremities. Hypertension among workers in the timber industry is a very common disease. Under hypertension is meant blood pressure that has a value above 140 mm Hg (systolic) and 90 mm Hg (diastolic) pressure. Following the tension of the workers in the industry it can be noted that a large number of workers has a greater value of blood pressure, and often in the enormously high value, which reaches up to 200/100 mm Hg. The reasons are numerous. Most often we interpret this phenomenon of high blood pressure with the nature of work of workers in the forest industry, difficult conditions at work, improper diet, stress, smoking and overtime. It is known that heavy and long-term physical exertion increases the value of blood pressure. In addition to the causes for these workers there are other causes that increase the value of blood pressure. The workers in the timber industry are usually smoking and take more than 20 cigarettes a day, while it is the most common and range, all of which increases the negative effect of nicotine on the body. These workers have poor sleep due to early getting up and going to work and generally irregular diet that is greasy, salty, smoked meat, preserved food. After returning from work due to fatigue they usually take a lying position which further affects blood flow and cardiovascular system. Usually they do not have a balanced sleep, because they have to go to work very early. Due to poor economic conditions they often engage in additional jobs for economic reasons, shorten their vacations and days off on weekends mainly use for subsequent operations, which further burdens the cardiovascular system and heart. Stressful factors are present everyday, a big nervous tension further increases risk factors for hypertension. Hypertension has a great influence on other organs and the organism as a whole. Previously listed risk factors influence the occurrence of atherosclerotic and varicose changes in blood vessels, especially of the lower extremities. In violation of these varicose changes there occurs heavy bleeding. It often leads to infections injured wounds, as stopping bleeding occurs in unsterile conditions and unprofessional, usually at the site of injury. In these places are not uncommon inflammation of the veins, and if there are complications they can lead to thrombophlebitis, which have many serious consequences. It

can start up the thrombus that can clog blood vessels of the heart, lungs and brain. On cerebro-vascular level they often exhibit changes in blood vessels in the form of arterosklerosis, aneurizms, which provide headache, numbness of certain parts of the body, paraesthesia, tinnitus, dizziness and instability. [4]

Ischemic heart diseases. These are diseases that occur due to atherosclerotic changes and the appearance of plaques in the blood vessels of the heart, increased blood pressure, cardiac hypertrophy due to physical exertion or other causes. We have already listed many of the risk factors that result in workers in changes in blood vessels and ischemic diseases, most commonly to the heart and brain. With workers in the timber industry, this disease appears at about 30% of cases. At the heart occur specific changes - cardiac hypertrophy. In this disease already atherosclerotic blood vessels are not strong enough to feed a sufficient amount of oxygen, and often occur ischemic changes in heart accompanied by specific symptoms, it is usually severe pain behind the breastbone, pain to the neck and back, and expansion of pain usually down the left arm. These ailments are known as angina pain, a disease such as angina pectoris. If the disease occurs in every major effort, then we are talking about stable angina pectoris, if it occurs without any sequence and effort then it is unstable angina pectoris. This is a very serious disease and must be addressed seriously in diagnostics and in therapy. From this global disease frequently suffer more men than women at the ratio 4:1, in the most productive years of about 40 years of age the ratio is 8:1, and with increasing age this ratio is declining, and almost equals at about 70 years of age. In the occurrence of angina it is necessary to perform EKG, heart ultrasound, Egro- stress test and coronary heart to have adequate therapeutic effect. [5]

With changes in the ECG there may be a therapeutic intervention, but there are also unstable angina pectoris which do not give change on the ECG, and they are much more dangerous and unpredictable because they can lead to plaque rupture in the blood vessel and that the content put into circulation and after that often arises heart attack, stroke or pulmonary embolism. All of these complications are very urgent and very dangerous conditions that require immediate hospitalization and intensive therapy. If an employee survives this condition usually he can no longer perform his previous work in the timber industry, and most often these workers go into early disability pension.

4. OCCUPATIONAL DISEASES AMONG WORKERS IN THE WOOD INDUSTRY

The most common occupational disease among workers in the timber industry are:

- Vibration Disease - This disease is an occupational disease and is caused by constant exposure or arm and whole body to vibration at work on the machines, tractors, saws. This disease is very common among workers in the timber industry and occupies about 95% of all occupational diseases such work and 32% of disability in workers. Most of those affected are aged between 45 and 47 years of age in the percentage of 29% and from 47 to 50 years of age the percentage is about 26%. Since these workers with this disease have a permanent damage to their health, they have tremor (shaking hands), and sometimes the entire body, sometimes occurs unsteady gait. To the discomfort and pain in the hands of the percentage is 15.8%, a pain in the hands 25%, bone pain 8%, myalgia 5%, peripheral nervous system disorder, 12.1%, and 8.5% has a psychological disturbance. All these percentages indicate a high professional disability to the permanent loss of working ability, which often occurs already

after 5-10 and years of work in these extremely difficult conditions. [6]

- Skin diseases- changes are usually located on the palms and fists, and often on the face. These diseases occur due to direct contact with wood, with impurities on tree bark, various resins, paddle, paints and varnishes that are often used in the wood industry. These changes are in the form of allergic reactions in the form of redness, flaking and peeling of the skin, are often of chronic nature in the form of contact dermatitis that require changing jobs at around 8.6%.

- hearing loss is also very common due large and excessive noise by machinery, vehicles and equipment that workers, and occurs in 30% of all workers in the timber industry. Out of these defects 28% is minor damage, 24% medium damage and 28% the excess of hearing impairment. On average only 20% of workers in the timber industry has normal hearing.

- Respiratory diseases are very common among workers in the timber industry. The most common causes are high humidity, dust, presence of various chemicals, such as paints, varnishes, paddle, various allergens from nature such as pollen of trees, pitch, frequent colds due to perspiration and the great physical effort, open exposure drafts, wind and rain. Respiratory diseases often suffer upper respiratory airways, throat, tonsils, larynx. More serious illnesses when the operations of the lower respiratory tract such as bronhitih and bronchial asthma. It is not uncommon nor emphysema which is the permanent destruction of lung parenchyma. In patients with asthma, reduced is the capacity of the inhaled air, but the bigger problem is the inability to throw out more of the inhaled air, so there occurs the so-called stridor, which is characteristic in asthmatics and bronhitis patients. These diseases are chronic obstructive pulmonary disease (COPD), and those make up about 3-4% of occupational diseases of workers in the industry.

- Diseases of muscle and joint tissue in workers in the forest industry are very common and almost inevitable. These diseases are common due to forced postures and disproportionate burden of locomotion. Workers who work as cutters whole day to spend polukrećecem or kneeling, Utility chain saw that has quite a lot of weight 10-12 kg represents an additional burden on the joints workers. The most commonly damaged cartilage occur in the knee joint, elbow joint, shoulder joint, wrists and inter-vertebral region of the spine. All these diseases because of forced positions of the joints leading to degenerative changes in the joints. Studies have shown that 39.2% of the degenerative changes in the spine take into account spondylosis, 23.8% as spondyartrosis, 23% in the form of intervertebral disc, and the gainfully going 15.4%. These data are similar to degenerative changes in the joints of the legs and hands, as locomotor apparatus is permanently in fixed position throughout the day, and for professionals in the industry.

5. CONCLUSION

Diseases of workers in the timber industry are very common, they often fall into the occupational disease. They are often very serious and lead to permanent disability. Its a very reduced service life and the ability of these workers, because of difficult working conditions, heavy and hard work, spending a large energy potential of the organism. Often to all these troubles contribute the workers too because of non-compliance on the work, not wearing protective equipment, irregular and inadequate nutrition, bad own habits such as smoking, alcohol consumption, doing extra jobs at home and outside working hours. The task of the

whole society is to provide good protection at work, to improve conditions in the workplace to carry out regular medical examinations of workers to be adequately paid for the hard and difficult work to provide them with enough days of rest relying on the quality use of annual leave, and to provide them with regular and quality health care and treatment of diseases.

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