

OCCUPATIONAL MEDICAL EXAMINATION – IMPORTANT INSTRUMENT IN DETECTING CARDIOVASCULAR DISEASES IN MEDICAL STAFF

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Abstract: The occupational medical examination constitutes the main instrument in the identification of any change in the employees' health status. The complexity of the medical staff's specific activity and the neuropsychological overload are all elements to increase the risk of developing cardiovascular pathology. The study analyzed the results of the occupational medical examination carried out in a hospital over a period of years. The degree in which the cardiovascular system was found to be affected among the medical staff examined did not reach the estimated general population level, but the cardiovascular diseases were the main cause of morbidity in the studied group. Hypertension was the most frequent pathological condition found in the studied group.

Cuvinte cheie: boli cardiovasculare, personal medical, control medical de medicina muncii, hipertensiune arterială

Rezumat: Controlul medical de medicina muncii este principalul instrument de depistare a oricărei modificări a stării de sănătate a angajaților. Complexitatea activității specifice și suprasolicitarea neuropsihică sunt elemente de încărcare a riscului dezvoltării unei patologii cardiovasculare la personalul medical. Studiul analizează rezultatele controlului medical de medicina muncii efectuat într-o unitate spitalicească pe parcursul a doi ani. Gradul de afectare cardiovasculară a personalului medical nu a atins nivelul estimat în rândul populației generale, dar bolile cardiovasculare constituie principala cauză de morbiditate a grupului populațional studiat. Hipertensiunea arterială este cea mai frecventă patologie în lotul studiat.

INTRODUCTION

In Romania, health surveillance of the employed population has a generous legislative support. Law no. 319/2006 of occupational safety and health (1) and Government's Decision no. 355/2007 (2) regarding employees' health surveillance set the framework and the circumstances in which occupational health assistance is provided. They also stipulate that the employers are required to provide access to all their employees to the occupational medicine services. As for the medical staff, Government's Decision no. 355/2007 stipulates a specific list of medical investigations focused almost exclusively on prevention and management of transmittable, contagious diseases. But the same document stipulates a series of investigations for staff working night shifts, which, considering the specific medical activities, applies to the majority of hospital workers. And since each workplace has particular risk factors, the occupational medicine physician is able to use more examinations to help identify a possible pathologic response at an early stage. Under these circumstances, the occupational medical examination is the main instrument in detecting any change in the health status of the employees, but also in monitoring the evolution of a pathological condition and its consequences over the individual's work capacity.

Bearing in mind the aggressive ascending evolution of the number of CVDs (cardiovascular diseases) cases in the world population, a special attention must be given to this type of human body reaction to life and work conditions. If at the beginning of the 20th century the number of CV (cardiovascular) deaths rose to 10% of the total deaths of known causes, after

only a century this percent tripled (3), bringing concern in the medical scientific media and among the health promoting and healthcare structures. At the same time, in the 21st century, the center of gravity shifted from high-income countries to low and medium-income countries (4).

The investigation of medical staff's health and of the presence of CV pathology wasn't conducted on a big scale. The largest studies belonged to the American research groups: Physicians Health Study I and II (5) and Nurses' Health Study (6). The reason for this lack of data is to be found especially in the activity area of this population group. The medical knowledge of the workers, especially the doctors, is the apparently surprising impediment (7).

The complexity of the medical activity, the neuropsychological overload, the necessity for and adequate reaction speed and for an optimal capacity to make decisions, the polyvalent interaction with the patient, the limits of the medical science are all occupational elements to burden the risk of developing CVDs. They can add to the non-occupational, primary factors: unhealthy diet, lack of exercise and smoking.

The role of occupational medical examination is greater as the occupational physician knows all the aspects of the medical activity can and will investigate the work conditions of the employees and can suggest changes of the work conditions if they have a negative impact on the employees' health status.

THE AIM OF THE STUDY

The study is a comparative analysis of results from

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occupational medical examinations of hospital employees over a period of two years, with a focus on CVDs.

MATERIAL AND METHOD

The study used the results of the occupational medical examinations carried out in a hospital in 2009 and 2010. In 2009, a number of 1135 employees were examined (55.72% of the 2037 total number of employees). In 2010, 1281 employees were examined – 62.89% of the employees. The medical exams and the laboratory tests were carried out according to the Romanian legislation on occupational health surveillance. They included: physical examination, visual acuity, psychological tests, electrocardiogram, pulmonary function tests, blood glucose, HBsAg, anti-HCV and anti-HIV antibodies, complete blood count, liver function tests, other medical examinations and laboratory tests ordered for diagnosis. The examinations were in accordance with the risk factors identified at the workplaces of the different hospital wards.

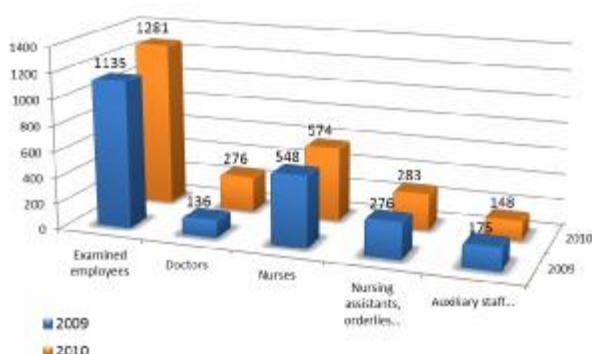
A comparative analysis of the results of the medical examinations and of the number and type of declared, identified or monitored medical conditions was performed. An analysis of the number and type of medical conclusions was also carried out.

RESULTS

For 2009 the examined staff structure was: 136 doctors (11.98%) – 74 specialists and senior doctors and 58 residents, 548 nurses (48.28%), 276 nursing assistants, orderlies and janitors (24.32%), 175 employees belonging to the administrative, technical and auxiliary staff (15.42%). 15.42% of the 1135 employees examined were men and 84.58% were women.

For 2010 the examined staff structure was: 276 doctors (21.55%) – 165 specialists and senior doctors and 111 residents, 574 nurses (44.81%), 283 de 276 nursing assistants, orderlies and janitors (22.09%) and 148 employees belonging to the administrative, technical and auxiliary staff (11.55%). The gender distribution had no significant change: 16.47% men and 83.53% women.

Figure no. 1. Staff structure of the examined employees



As a result of the 2009 occupational medical examination, the fitness-for-work document was issued (2 copies – one for the employee and one for the employer) for a number of 821 employees (72.33% of the examined employees), 314 employees failing to undergo all the required examinations and tests. In 2010, 1024 employees received the fitness-for-work document (79.94% of the total numebr of exemined employees) and 257 employees failed to undergo all the required examinations and tests.

As a result of the 2009 occupational medical examination, 773 employees were declared “fit-for-work” (94,12% of the fitness-for-work documents issued) and 48 employees were declared “fit-for-work under the recommendations”. In 2010, 988 employees were declared “fit-for-work” (91.14% of the fitness-for-work documents issued) and 36 employees were declared “fit-for-work under the recommendations”.

The medical results of the 2009 occupational medical examination led to the identification of a number of pathology categories, the following hierarchy being based on the number of declared, detected or monitored cases:

- 92 of hypertension in different stages of evolution,
- 40 cases of obesity class I-III,
- 38 cases of venous chronic insufficiency ,
- 36 cases with thyroid pathology,
- 29 cases of cardiac diseases (cardiac ischemia, cardiac arrhythmias, cardiac valves pathology)
- 23 cases of spine pathology,
- 21 cases of Hepatitis B and C,
- 10 cases of diabetes mellitus – 7 cases of type II diabetes and 3 cases of type I diabetes.

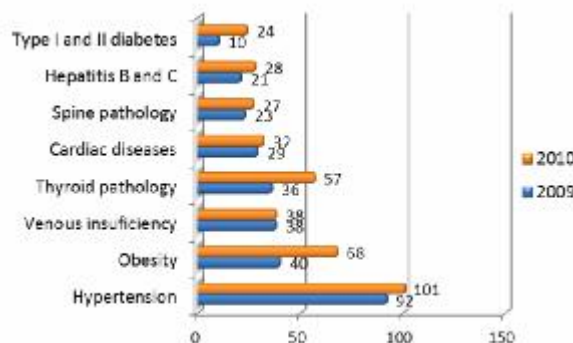
The medical results of the 2010 occupational medical examination led to the identification of the following pathology categories:

- 101 of hypertension in different stages of evolution,
- 68 cases of obesity class I-III,
- 57 cases with thyroid pathology,
- 38 cases of cardiac diseases (cardiac ischemia, cardiac arrhythmias, cardiac valves pathology),
- 38 cases of venous chronic insufficiency.
- 28 cases of Hepatitis B and C,
- 23 cases of spine pathology,
- 24 cases of diabetes mellitus – 17 cases of type II diabetes and 7 cases of type I diabetes.

Only a smaller number of other conditions were found (digestive, haematological, dermatological) and their incidence was bellow 1%.

The summation of the the CVDs cases represent 55.02% of the total pathology found in 2009 and 45.60% of the pathology found in 2010. If we add up the obesity cases (obesity is an significant risk factor for CVDs), the percentage reflecting the CV burden changes even more: 68.86% in 2009 and 63.73% in 2010.

Figure no. 2. Main pathology categories



As for the pathology which holds the first position in the above hierachy – hypertension – its frequency among the examined employees is 8.11% for 2009 and 7.88% for 2010.

In 2009, 354 examined employees (31.19%) had no pathology and were not ametropic. In 2010, 452 examined

employees (35.28%) had no pathology and were not ametropic.

All the employees presenting a type of pathology received recommendations at the end of the medical examination. The recommendations regarded the management of their health condition, potential changes in their occupational activity or of the work conditions, the latter being written on the fitness-for-work document. A number of employees needed more frequent periodical examinations for the monitoring of their health status and its relation to their activity.

DISCUSSIONS

The data presented in this study are partial results of an ampler study. We must state from the beginning that occupational medicine practice, as opposed to medical services received in the family practices or the clinics and hospitals, has totally different characteristics. It is a predominantly preventive activity, but which, contrasting the prevention done by other medical structures, is mandatory. This brings significant advantages, but also serious drawbacks.

One of the advantages of the compulsoriness of the annual medical examination is that the entire active population benefits of a medical examination. And it is no ordinary examination, but one centered on the interaction between health and occupation. Thus, all manifest or latent pathology is identified and a treatment is started or monitored and the patient's health and work capacity are being kept under surveillance. This is where the changes in the employee's activity and work condition start, if necessary and possible. They can be extended to a temporary or permanent change of workplace. If the pathology is of occupational nature, it becomes an alarm signal for the company or the institution to correct the factors that determined the development of the occupational disease, with the aim of avoiding new similar illnesses. The conclusion is that the compulsoriness of the occupational medical examination constitutes an important instrument in the preservation and improvement of the employees' well-being in the workplace.

At the same time the enforcement of this examination is a serious disadvantage. Many employees and employers perceive the mandatory activity as an effort with no immediate benefits, as an economic burden or as a useless and unhelpful activity. This will directly reflect itself in doctor-employee and doctor-employer relationship. The first consequence of the incorrect perception of the occupational medical examination is that the employees will not attend the examination. As seen in our results, that is the case for over a third of the employees. There are no national statistics to show the percentage of employees attending occupational medical examination, to be used for comparison.

But if we focus on the specific activity of the hospital – healthcare – things get even more complicated. The different studies and evaluations done by foreign researchers show a low level of compliance to this type of medical examination among the medical staff, especially among doctors (7,8). The latter ask for medical services following repeated suggestions of colleagues or when there is a legal constraint (9,10,11). In our study there is a significant increase in doctors' attendance to the examination between the two years, in the second year the number of doctors having doubled. The reason is the same as described in other studies: in 2010 there was an administrative constraint aiming a particular segment of the hospital doctors. Despite that, almost half the doctors didn't attend occupational medical examination. The other employee categories had relatively constant attendance percentage (60% to 70%).

The reasons for not attending the annual examination are clearly different from those of other professionals. The

members of the medical staff, even when having a health condition, choose a different path than the general population: they seek direct and often informal advice from a doctor. Doctors treat themselves when they think their own medical knowledge is sufficient or seek advice from a specialist. Even if their work capacity is diminished by their illness, they do not seek advice from an occupational physician. Another characteristic of ill doctors is they don't go on sick-leave. They either think they don't need rest or they feel they have work constraints: the hospital is low on staff, the inpatients have complex pathology or are in a critical state. They may also feel their illness should be kept secret from their colleagues. The same thing applies to other medical staff categories who often take vacation days off, not sick-leave, to solve their medical problems. As a result, a statistics of the sick-leave days doesn't accurately reflect the absenteeism of medical cause.

Another problem the occupational physician encounters appears during the medical examination. Some employees, even questioned about it, give no answer about their illnesses and the illness can't always be identified during the examination. This is sometimes the case of appropriately managed hypertension. One of the reasons for this is unjustified fear of self-predicted consequences: change in the work conditions, change of workplace. Other times the employee considers that talking about his/her pathology is simply useless.

Another obstacle for finalizing the examination, having a diagnosis or giving the fit-for-work document appears when the employees have to undergo other lab tests or consults. As we have noticed, between 20% and 27% of the employees didn't have their lab tests done or attend other examinations. This was the reason they did not get the fit-for-work document. From their health point of view, the main consequence is not having a conclusion to the examination, a diagnosis or a treatment, where necessary.

That is why these partial data must be considered under the described context and interpreted accordingly.

With all the obstacles, the number of cases with CV pathology is high. And so is the percentage for the diseases that act as risk factors for CVDs: obesity, thyroid dysfunctions, diabetes mellitus – 29.75% of the pathology found in 2009 and 39.73% in 2010. The percentage of hypertensive employees is clearly prevalent: 31.83% in 2009 and 39.73% in 2010. It doesn't go beyond the prevalence predicted for Romania by SEPHAR (Study of Hypertension Prevalence and Cardiovascular Risk Assessment in Romania), which is 40% (12), but if we consider the nature of our group – medical staff – and the percentage of attendance to the occupational medical examination, we think the numbers are important. Even if SEPHAR used a relatively small sample of population (2017 adults) to be used for a national prediction, its results are not to be neglected. Its conclusion is that Romania has a high CV risk. Another estimation of hypertension prevalence, this time a global one, based on studies published between 1980 and 2002, showed a percentage of 26.4 for 2002 and an estimate of 29.2 for 2025 (13).

If we take into consideration the 40% CV deaths in Europe (14), it becomes a priority to focus attention on the detection and management of CVDs, on their prevention and on decreasing their number and the force of the risk factors.

CONCLUSIONS

Occupational medical examination is the most important instrument of prevention and control in any type of pathology, implicitly CV, and, despite the inherent obstacles of a mandatory activity, it remains the most significant implement through which the employees can check-up their health.

Though CVDs of medical staff are not as frequent as CVDs of general population, they are still the main morbidity cause in our group. Hypertension is the most frequent pathology found in the group.

Pathology playing the role of risk factor for developing or exacerbating CVDs has a significant heft in the morbidity panel.

Medical staff needs particular approach.

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