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Słowa kluczowe:

Ostre zespoły wieńcowe, studenci, postępowanie
przedszpitalne, ratownictwo medyczne

Key words:

acute coronary syndrome, students, pre-hospital
management, emergency medicine

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Evaluation of knowledge of students of the faculty of public health, the specialty of emergency medicine on Management in acute coronary syndrome

Ocena wiedzy studentów Wydziału Zdrowia Publicznego, specjalności Medycyna Ratunkowa, na temat postępowania w Ostym Zespole Wieńcowym

Choroby układu krążenia w obecnej chwili są jednym z najpoważniejszych zagrożeń dla zdrowia i życia społeczeństwa. Celem naszej pracy była ocena stanu wiedzy studentów próby badanej w zakresie postępowania w ostrych zespołach wieńcowych. Badaniu poddano 60 studentów drugiego roku studiów magisterskich kierunku Zdrowie Publiczne, Specjalność Medycyna Ratunkowa. Studenci odpowiedzieli prawidłowo na 67% odpowiedzi. Zarówno w trybie stacjonarnym jak i niestacjonarnym procent prawidłowych odpowiedzi był niemal identyczny. Wiedza studentów trybu stacjonarnego jak i niestacjonarnego w próbie badanej z wybranego zakresu jest porównywalna. Należy prowadzić dalsze badania oraz obserwacje w danym zakresie w celu zwiększenia efektywności kształcenia.

Introduction

According to statistics, cardiovascular diseases are one of the main causes of mortality in the world. They are followed by neoplastic diseases – the second main cause of death [1,2]. In Europe, cardiovascular diseases contribute to around 40% of deaths in people aged 75 years old or younger [3]. However, the Central Statistical Office informed that at the beginning of this millennium cardiovascular diseases contributed to almost 48% of deaths in Poland. In 2010 the rate decreased to about 46% [4]. Diseases which cause the greatest number of deaths include: ischemic heart disease and cerebrovascular disease [1]. In 2010 ischemic heart disease contributed to 76.5 deaths per 100,000 inhabitants of the European Union [5]. Extensive myocardial ischemia may lead to arrhythmia and finally, to sudden cardiac arrest [6]. Cardiac arrest contributed to more than 60% of deaths, which were indirectly caused by ischemic heart disease [7]. It is highly important to set a diagnosis immediately, evaluate risk factors and clinical symptoms [8]. Identifying the disease in pre-hospital conditions, without having proper knowledge on typical clinical symptoms or without attending practical classes beforehand, might be really difficult [8,9,10]. While managing a patient with severe cardiac

Cardiovascular diseases are these days one of the most serious health and life hazards for a society. The aim of the study was to evaluate the knowledge of students of the study group on management procedures in patients affected by acute coronary syndrome. The study included 60 students of the 2nd year of the second cycle studies from the Faculty of Public Health, specializing in Emergency Medicine. 67% of the answers the students gave were correct. In both the groups of students, i.e. full-time and extramural, the percentage of correct answers was almost identical. The knowledge of the studied full-time and extramural students on selected issues is comparable. Further studies and observations must be made in order to increase the effectiveness of educational methods.

problems one should consider risk factors, clinical symptoms and electrocardiogram records in order to initiate an appropriate action saving the health and life of the patient [8,11] and to reduce the damage to the heart by reperfusion performed within a short period of time [12,13].

Aim of study

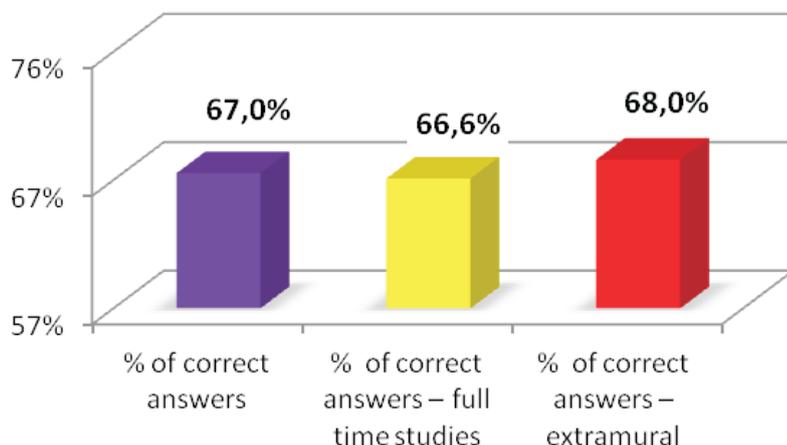
The aim of the study was to evaluate the knowledge of the study group on taking management measures in patients with acute coronary syndrome. The authors of the study included theoretical and practical questions in their survey questionnaire. They wanted to check if students who are about to complete their medical education and who will soon start their professional work as paramedics are prepared to take right decisions on pre-hospital management of a patient with severe cardiac problems which put his health and life at risk. The authors particularly pointed out acute coronary syndrome due to the fact it contributes to high mortality. They also stressed the importance of initiating right pre-hospital management procedures.

Materials and methods

60 students of the 2nd year of the second cycle studies from the Faculty of Public Health, specializing in Emergency Medicine and Crisis Management were included in the study. The number of female respondents was 34 and the number of male respondents was 26. They were both full-time students (57%) and extramural students (43%). In the first group women outnumbered men and in the second group there were more men than women. In the whole study group some students (17%) worked in emergency medicine. The full-time students did not decide to seek employment in emergency medicine. All the respondents were asked to fill in the survey questionnaire containing questions on the mentioned issues. The theoretical part consisted of 12 questions and the practical one - of 5 questions. Microsoft Excel 2010 program was used for statistical purposes.

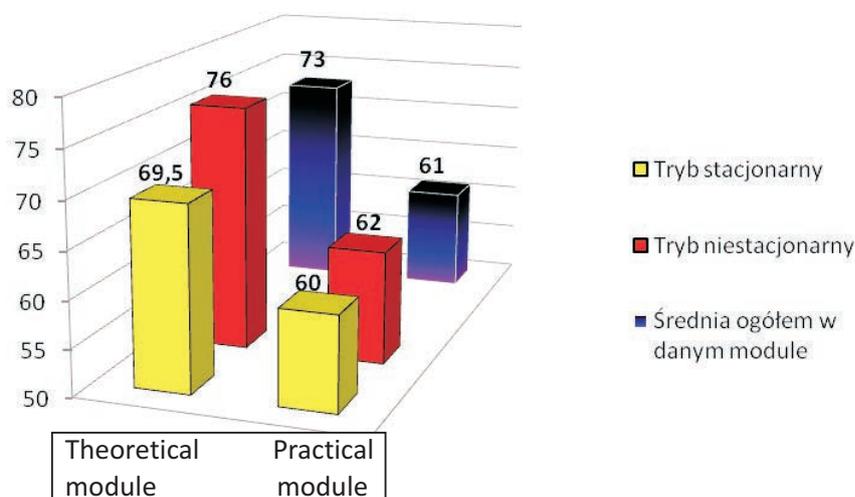
Results

The students gave correct answers to 67% of the questions (Pic. 1). The distribution of results implies that in most cases the number of correct answers given by both male and female students was 11.45 ± 3 and full-time female students far more often gave correct answers (11.8) than female extramural students (10.2). With regards to males this trend was reverse (11 and 12.8 correct answers respectively). However, we should remember that the total number of females in the study group was greater and it made up 57%. Nevertheless, the males gave on average 12 correct answers, whereas the mean number of correct answers given by females was 11. The percentage of correct answers given by full-time and extramural students was almost identical (66.6% and 68% respectively; SD 16%) (Pic. 1).



Picture 1. Percentage of correct answers in total and by type of studies (the authors' own analysis)

After comparing the knowledge of the students who work in emergency medicine with those who have not done professional work yet the authors concluded that the students who use theoretical knowledge in practice gave correct answers of the questionnaire much more frequently. Their result was $14.5 \text{ questions} \pm 4.02$, whereas the students who continue their medical studies and still have not had a chance to gain professional experience, roughly gave 11 correct answers ± 2.28 . The total number of questions, without the questions on personal data was 17. The students who have worked in emergency medicine gave more correct answers (12.9) than the students who have not worked yet (11.06), by $\pm 11\%$.



Picture 2. Percentage of accurate answers with respect to the division into theoretical and practical questions (the authors' own analysis)

The men working as paramedics in specialist medical rescue teams with a doctor for at least a period of 1.5 years gave the most accurate answers. With regards to females, the period of employment was not longer than 1 year and they were employed in hospital emergency departments or at admission rooms. The study group demonstrated more extensive theoretical knowledge and the percentage of correct answers was 73%. Extramural students gave accurate answers more often than full-time students (76% and 62% respectively). With regards to questions on practical issues, the mean number of correct answers in both the groups was similar but extramural students were slightly more knowledgeable in this respect (60% and 62% respectively) (Pic.2).

Extramural students demonstrated more extensive knowledge while answering the survey questionnaire. They constituted a less numerous group (37% of the whole study group). They gave accurate answers to theoretical questions on risks of coronary disease (the percentage of correct answers was 100). The students had great difficulty giving accurate answers to questions on the classification of cardiac failure in recent myocardial infarction (17% of correct answers) and on the thrombolytic therapy (45% and 47% of correct answers). With regards to questions on practical issues, the students had difficulty in proper identification of electrocardiogram records in anterior wall myocardial ischemia. 82% of the respondents correctly identified symptoms of recent inferior myocardial infarction.

Discussion

Levis, who conducted a study on the knowledge of managing patients with acute coronary syndrome with the elevated ST segment in a group of

emergency medicine students, obtained similar results. His study showed that first year students from an experimental group, who studied Emergency Medicine, were able to identify acute coronary syndrome properly and then implement appropriate pre-hospital procedures after they had attended a lecture, seen and analyzed 20 different electrocardiogram records. On the day the study was conducted the experimental group gave 75.6% of accurate answers, whereas the control group – 74.4%. The study was conducted again after 5 months. It confirmed the assumption that a lecture accompanied by a detailed explanation allows students to remember information better. The result in the study group was 87.4%, whereas in the control group it was 75% [14].

The students from the study group had difficulty identifying acute coronary syndrome, neither in theoretical nor practical issue questions. More than half the students identified inferior myocardial infarction on the basis of electrocardiogram records and implemented appropriate pre-hospital management measures. A similar study which aimed at evaluating students' knowledge on cardiac states was also conducted in Cracow, in the academic year 2010/2011. The Student Scientific Circle in the Department of Cardiology of Collegium Medicum of Jagiellonian University assesses the knowledge of the 4th, 5th and 6th year students of the Faculty of Medicine on the ability to identify pathological episodes and regular values of electrocardiogram records. The students from Cracow were able to identify myocardial infarction in 73%. However, the identification of inferior myocardial infarction appeared to be a difficult task. Only 40% of the students were able to do it [15]. In our study 71% of students of the Faculty of Public Health, studying Emergency Medicine were able to identify infarction on the basis of electrocardiogram records and with regards to inferior myocardial infarction as many as 83% of the studied respondents managed to identify this disease.

We should hope that the gained knowledge on prophylaxis of cardiovascular diseases will be implemented in everyday life by people included in studies. In a study conducted in a group of Warsaw students, the respondents were asked about risk factors of cardiovascular diseases, including ischemic heart disease [16]. The students easily pointed out risks such as: obesity – 92%, a high cholesterol level - 89%, smoking cigarettes - 85%

or hypertension – 75.8%. They forgot about non-measurable risk factors such as sex, age or myocardial infarction at an early age, which affected other family members. These are also factors which contribute to cardiovascular diseases. The studied group of the Lodz university demonstrated a great knowledge on risk factors of cardiovascular diseases; the students gave 100% of correct answers.

Conclusions

1. The number of accurate answers to particular issues, given by full-time and extramural students, is similar.
2. Students of Emergency Medicine are able to identify inferior myocardial infarction on the basis of electrocardiogram records, which is highly important as this condition requires specific management in the pre-hospital period.
3. Further studies and observations must be made in order to increase the effectiveness of educational methods.

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