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Ostra zatorowość płucna diagnozowana u pacjentów izby przyjęć

Streszczenie

Wstęp. Ostra zatorowość płucna jest częstym schorzeniem, którego diagnostyka może stanowić problem w związku z różnorodnym i często niecharakterystycznym obrazem klinicznym.

Cel. Celem pracy była ocena częstości stawiania podejrzenia zatorowości płucnej, odsetka potwierdzonych przypadków, oraz ocena sezonowości występowania ostrej zatorowości płucnej w warunkach Szpitalnego Oddziału Ratunkowego szpitala klinicznego.

Materiał i metody. Dokonano retrospektywnej analizy badań angiografii płucnej wielorzędowej tomografii komputerowej wykonanych w okresie od 1 stycznia 2007 do 31 grudnia 2009 w oparciu o bazę danych I Zakładu Radiologii Lekarskiej. W analizowanym okresie wykonano 420 badań angiografii płucnej wielorzędowej tomografii komputerowej z podejrzeniem ostrej zatorowości płucnej.

Wyniki i wnioski. Średni odsetek potwierdzonych przypadków zatorowości wynosił 34.8%. W analizie poszczególnych lat zaobserwowano statystycznie istotny ($p<0,001$) wzrost ilości skierowań z podejrzeniem zatorowości płucnej. Nie stwierdzono statystycznie istotnych zmian proporcji potwierdzonych i wykluczonych przypadków zatorowości płucnej w badanym okresie, aczkolwiek odsetek potwierdzeń malał w kolejnych latach. Nie stwierdzono istotnych różnic częstości występowania zatorowości płucnej w zależności od pory roku. Liczba badań z powodu podejrzenia ostrej zatorowości płucnej rośnie w kolejnych latach obserwacji.

Słowa kluczowe: zatorowość płucna, angiografia płucna tomografii komputerowej, sezonowość.

Acute pulmonary embolism in patients diagnosed at Emergency Department

Abstract

Introduction. Acute pulmonary embolism is a frequent condition which may constitute an important diagnostic problem, especially in the setting of Emergency Department.

Aim. The aim of the study was to analyze the time trend of the suspected pulmonary embolism in the setting of Emergency Department of the university hospital, as well as assess a yearly distribution of the number of examinations with suspected and confirmed pulmonary embolism.

Material and methods. Radiology information system of the I Department of Radiology, Medical University of Lublin has been used to identify the patients with suspected pulmonary embolism diagnosed in the setting of the Emergency Department from 1 January 2007 to 31 December 2009. In the analyzed period, 420 multi-detector computed tomography pulmonary angiography examinations have been performed with pulmonary embolism suspected in the patients admitted to the Emergency Department of our institution.

Results and conclusion. Mean confirmation rate was 34.8%. A significant increase ($p<0.001$) in the number of examinations with suspected pulmonary embolism in the analyzed period was observed. No statistically significant differences of the distribution of the suspected and confirmed pulmonary embolism cases were observed regarding seasonal periodicity. A significant increase in the number of suspected pulmonary embolism admissions to the Emergency Department was observed in the analyzed period. A relative decrease in the number of confirmed embolism cases was observed; however, the difference was not statistically significant.

Key words: pulmonary embolism, computed tomography, pulmonary angiography, seasonality.

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INTRODUCTION

Pulmonary embolism (PE) is a common condition with a documented annual incidence reaching 90,000 cases in Poland [1]. PE-related mortality is high, with death rate up to 30% in untreated patients, with death rate reduced to 2% –10% if diagnosis and treatment are introduced proficiently [2-3]. Patients with acute pulmonary embolism show a wide spectrum of clinical status as well as various risk factors. Multi-detector computed tomography pulmonary angiography (CTPA) allows the visualization of embolic material with concurrent assessment of pulmonary parenchyma and mediastinal structures, with a time of scanning as low as 10 seconds [4].

AIM

The aim of the study was to assess the number of suspected PE examinations in the examined period, analyze percentage of confirmations, as well as to evaluate the seasonal distribution of confirmed PE cases.

MATERIAL AND METHODS

A search in the Radiology Information System (RIS) of the I Department of Radiology, Medical University of Lublin was made to identify all patients diagnosed with multi-detector computed tomography pulmonary angiography (CTPA) for suspected acute pulmonary embolism from 1 January 2007 to 31 December 2009 at the Emergency Department of our institution. Information on gender, age of patients as well and confirmation or exclusion of pulmonary embolism was recorded. Statistical analysis was performed with SPSS 17.0 package. Chi-square test was used for nominal parameters, Mann-Whitney for numerical ones.

RESULTS

In the analyzed period, 420 multi-detector computed tomography pulmonary angiography examinations have been performed with pulmonary embolism suspected in the patients admitted to the Emergency Department of our institution. A significant increase ($p<0.001$) in the number of examinations with suspected pulmonary embolism in the analyzed period was observed. Mean confirmation rate was 34.8%. A decrease in the percentage of confirmed PE cases was observed (2007: 38.8%; 2008: 36.6%; 2009: 32.2%); however, the change was not statistically significant.

Median age of patients with excluded PE was 69yrs old (range: 18-97); in patients with confirmed PE: 73yrs old (range: 26-96); $p=0.112$. Gender distribution of suspected as well as confirmed PE cases were not statistically significant ($p=0.111$), detailed gender distribution is presented in Table 1. No statistically significant differences between gender and age of patients with confirmed and excluded PE were observed.

Seasonal distribution of PE was analyzed in male and female patients. The highest occurrence of PE in males was in summer, while in autumn in males; however, the differences were not statistically significant.

TABLE 1. Percentage of exclusion/confirmation of suspected PE according to gender. PE was confirmed more frequently in males; however, the difference was not statistically significant (p=0.111).

			Pulmonary embolism		Total
			excluded	confirmed	
Gender	F	Number	150	68	218
		% of excluded/confirmed	54.7%	46.6%	51.9%
	M	Number	124	78	202
		% of excluded/confirmed	45.3%	53.4%	48.1%
Total		Number	274	146	420
		% of excluded/confirmed	100.0%	100.0%	100.0%

FIGURE 1. Number of patients with confirmed and excluded PE in the analyzed period. An increase of number of patients is statistically significant (p<0.001).

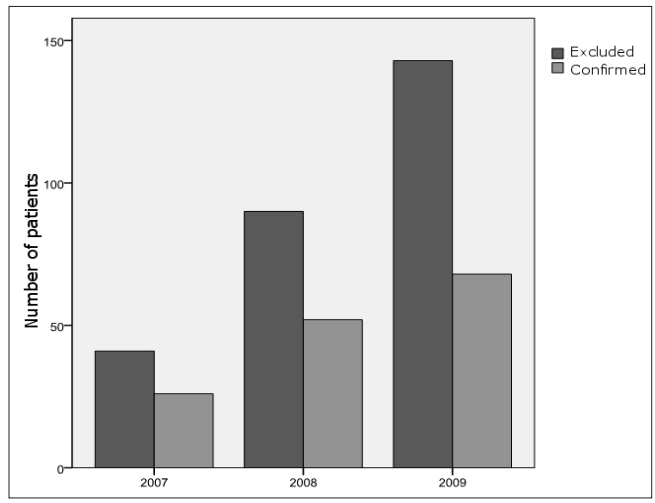
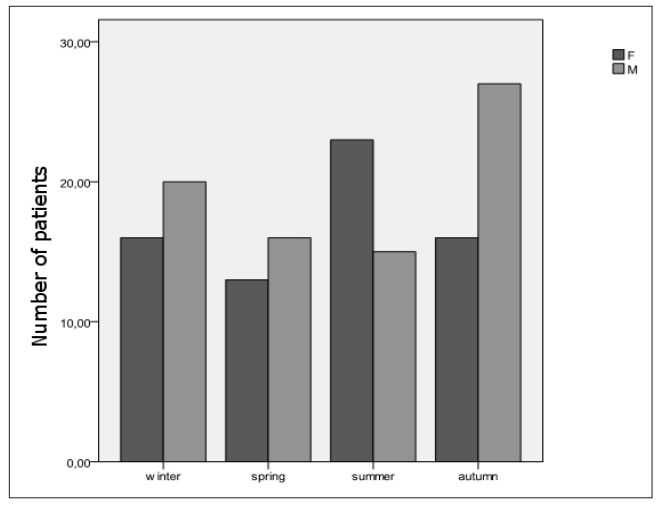


FIGURE 2. Seasonal distribution of confirmed PE cases in male (M) and female (F) patients. In neither group, seasonal occurrence of PE was statistically significant (p=0.207; p=0.365, respectively).



DISCUSSION

Pulmonary embolism is an acute cardiovascular condition, related with high mortality. After the acute episode, patients require long-term treatment for the secondary prevention of thromboembolic events. Multiple risk factors are related with this condition, including orthopedic or trauma surgery, chronic heart or respiratory failure, malignancy, hormonal replacement therapy, immobilization or obesity [5].

We did not observe a significant gender predisposition of confirmed PE cases at the Emergency Department setting. PE morbidity is reported to increase with age and to be higher in males (male/female 1.24) [6]; females with PE had lower odds of 30-day mortality [7]. However, some reports show age-related difference in PE incidence, with higher morbidity in males aged 30–69 years than in females within the same age groups, while in patients aged 70 and over, prevalence was higher in females [8]. A recent report shows also a higher PE morbidity in female airplane passengers, with incidence of 0.61 cases per million passengers and of 0.2 cases per million male passengers [9].

Seasonality of PE confirmations was analyzed. In our material no statistically significant differences were observed in male or female patients. Seasonality of PE is under extensive research at present and the results published by researchers from various geographical settings show different conclusions. Masotti et al. [10] have observed an increased number of PE incidents during warm months at the cardiology department. Manfredini et al. [11] report the peak PE-related morbidity in winter. Galleriani M et al. [12] in a population study observed the lowest number of PE episodes in the spring and highest in the winter. One of the largest population studies of PE incidence has been performed by Stein et al. [13] who did not observe seasonal variation of PE episodes. Our results confirm the need of a large scale population analysis to further assess possible seasonal variation of PE-related morbidity.

CONCLUSION

Efficient diagnosis of pulmonary embolism in the setting of Emergency Department is important in the diagnostic process. The observed increase in the number of suspected and confirmed PE cases show a need for further research on the early diagnosis of this life threatening condition.

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