

КЛИНИЧЕСКОЕ ТЕЧЕНИЕ СИНКОПЕ В ДИФФЕРЕНЦИАЛЬНОЙ ДИАГНОСТИКЕ СИНКОПАЛЬНЫХ СОСТОЯНИЙ

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Цель. Оценить клинические признаки и симптомы в дифференциальной диагностике синкопальных состояний.

Материал и методы. Мы исследовали 160 пациентов (64 мужчин и 96 женщин), в возрасте 18-77 лет с рефлекторными и кардиогенными синкопе с продолжительностью более 3 лет. Были исследованы следующие показатели: возраст, пол, возраст появления первого синкопе, количество пресинкопальных эпизодов, число эпизодов, число синкопе без продромальных признаков и обстоятельства обмороков. Кроме того, мы оценили частоту продромальных признаков в дифференциальной диагностике синкопальных состояний.

Результаты. Больные с рефлекторными синкопе были моложе по сравнению с больными с кардиогенными синкопе (41,3±16,5 против 61,8±12,8; p<0,001) и имели более низкий вес и индекс массы тела (ИМТ). Больные с рефлекторными синкопе чаще проявляли пресинкопальные признаки (10 (2, 20) против 2 (1, 3); p=0,01) и их число было больше (8,1±7,8 против 5,4±1,6; p<0,001). Одышка, учащенное сердцебиение, ощущение холода или жара, расстройство зрения и шум в ушах были связаны с рефлекторными обмороками (p<0,01).

Заключение. Изучение синкопального состояния может облегчить диагностический процесс рефлекторных и кардиогенных обмороков.

Ключевые слова: кардиогенные синкопе, продромальные симптомы, рефлекторные синкопе, синкопальные состояния.

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THE CLINICAL COURSE OF PRESYNCOPE IN THE DIFFERENTIAL DIAGNOSIS OF SYNCOPE

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Aim. To evaluate the clinical signs and symptoms in the differential diagnosis of syncope.

Material and methods. We investigated 160 patients (64 men and 96 women), aged 18-77 years with reflex or cardiac syncope over the last 3 years. The following were investigated: age, sex, age at first syncope, number of presyncopal episodes, number of syncopal episodes, number of sudden syncope without prodromal signs and the circumstances of syncope. Moreover, we assessed the frequencies of prodromal signs in the differential diagnosis of syncope.

Results. Patients with reflex syncope were younger compared to patients with cardiac syncope (41,3±16,5 vs. 61,8±12,8; P<0,001) and had lower weight and body mass index (BMI). Reflex syncope patients more often presented with presyncope (10 (2, 20) vs. 2 (1, 3); p=0,01) and syncope (8,1±7,8 vs. 5,4±1,6; P<0,001). Dyspnea, heart palpitations, feeling of cold or heat, visual disturbances and tinnitus were associated with reflex syncope (P<0,01).

Conclusion. The course of syncope may facilitate a diagnostic process of reflex and cardiac syncope.

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Key words: cardiac syncope, prodromal symptoms, reflex syncope, syncope.

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Syncope is a transient loss of consciousness caused by transient, general cerebral hypoperfusion, characterized by rapid onset, short duration and spontaneous recovery [1, 2].

The most frequent type of syncope is reflex syncope (neurally-mediated syncope), among which vasovagal syncope is the most frequent type [3].

Vasovagal syncope, which constitutes up to 40% of syncope of unclear origin, is defined as a rapid loss of consciousness due to excessive reaction of the autonomic nervous system [1, 4].

During syncope a rapid decrease in systolic blood pressure occurs and, in consequence, a significant decrease in cerebral blood flow is noted [1, 5].

Cardiac syncope constitutes the second most prevalent type of syncope. The main reasons of cardiogenic syncope are rhythm disturbances such as supraventricular and ventricular tachycardia and bradyarrhythmia (as a combination of sinus node dysfunction, atrioventricular node dysfunction and malfunction of implantable devices). They lead to hemodynamic instability, which may cause a critical decrease in cardiac output and in cerebral blood flow [1, 2].

Determining the cause of syncope is a significant part of syncope evaluation. In the current ESC guidelines for the diagnosis and management of syncope two aspects of patients with syncope were stressed. These are the determination of the exact cause of syncope in order to imple-

Table 1

General characteristics of the studied groups

Parameter	Total number of patients n=160 n (%), X±SD	Group I — reflex syncope n=80 n (%)	Group I — cardiac syncope n=80 n (%)	P-value
Age, years	50,6±17,3	41,2±15,7	62,1±13,1	0,001
Female gender	96 (60)	51 (63,8)	45 (56,3)	NS
Male gender	64 (40)	29 (36,3)	35 (43,8)	NS
Height, cm	168,2±9,1	167,1±8,7	169,0±7,9	NS
Weight, kg	74,2±13,9	71,2±14,1	79,1±14,0	0,01
Cardiovascular drugs	74 (46,3)	24 (30)	50 (62,5)	0,001

Annotations: n — number of patients, Data are reported as the mean value ± SD or number (%) of patients.

Abbreviations: SD — standard deviation, NS — non significant.

ment the causal treatment and individual patient risk stratification, due to the fact that patient risk is not related to syncope mechanism itself but it is frequently associated with the primary disease [1, 2].

Obtaining history plays a crucial role in establishing the exact cause of syncope. Special consideration should be given to prodromal signs such as dizziness, nausea, weakness, sweating and vision disturbances [1, 6].

The aim of the study was to assess the usefulness of the basic data obtained from patient history and prodromal signs in the differential diagnosis of reflex and cardiac syncope.

Material and methods

We enrolled 160 patients (96 women, 64 men) with a history of syncope, aged 18-77 years, mean age 50,6±17,3 hospitalized in the Coronary Disease Department, the Institute of Cardiology, Medical School of Jagiellonian University, John Paul II Hospital, Cracow, Poland. Reflex or cardiac syncope had been diagnosed in all patients on the basis of investigations, according to the current ESC guidelines [1, 2]. All patients were divided into two groups: group I with reflex syncope and group II with cardiac syncope. A neurological cause of loss of consciousness had been excluded in all patients before enrollment.

The exclusion criteria were as follows: heart failure, decreased left ventricle ejection fraction, unstable coronary artery disease, aortic stenosis, pulmonary embolism.

All patients were diagnosed according to the ESC guidelines [1, 2]. The detailed clinical history was taken with consideration given to:

- the age at first syncope,
- the total number of presyncopal episodes,
- the total number of syncopal episodes,
- the number of syncope without prodromal signs,
- the circumstances immediately prior to the attack (supine, sitting or standing position, activity, crowded or warm place),
- prodromal signs (generalized weakness, dyspnea, palpitations, cold sweats, feeling of cold or heat, blurred vision, tinnitus, headache, abdominal pain, nausea).

Statistical analysis was performed using Statistica 8.1 Statsoft. Numerical continuous variables were presented

Table 2

The detailed cause of syncope in the studied groups

Cause of syncope	n=80 n (%)
Cardiac syncope	n=80 n (%)
Arrhythmia	76 (95)
Tachycardia	
— Supraventricular	35 (43,8)
— Ventricular	24 (30)
Bradycardia	
— Sinus node dysfunction	8 (10)
— Atrioventricular conduction system disease	5 (6,3)
Structural disease	4 (5)
— Hypertrophic cardiomyopathy	4 (5)
Reflex syncope	n=80 n (%)
Typical vasovagal	73 (91,3)
Carotid sinus	3 (3,8)
Situational	4 (5)

Annotations: n — number of patients, Data are reported as the mean value ± SD or number (%) of patients.

Abbreviations: SD — standard deviation, NS — non significant.

as mean values ± standard deviation (SD), dichotomous variables were presented as the percentage. The analysis of normality was performed using the Kolmogorov-Smirnov test, the Lilliefors test and the Shapiro-Wilk test.

The homogeneity of variances was checked using the Levene test and the Brown- Forsyth test. The comparison of the variables with normal distribution was performed using the Student t test for unbound variables.

Nonparametric rank tests (Kolmogorov-Smirnov for two groups and Mann-Whitney U test) were used in the case of variables with non-normal distribution. P values below 0.05 were considered statistically significant.

Results

General characteristics of the study groups were presented in table 1.

Group II (with a cardiogenic cause of syncope) was characterized by older age and more frequently occurring concomitant diseases.

Table 3

Important features concerning syncope. Cardiac versus reflex syncope

Parameter	Reflex syncope n=80	Cardiac syncope n=80	P-value
Age at first syncope, years	22,6±14,8	48,0±8,6	0,001
Number of presyncopal episodes	16,8±21,3	3,2±4,4	0,001
Number of syncopal episodes	8,1±7,8	5,4±1,6	0,001
Suspected heart disease after initial evaluation	16 (26,6)	77 (96,5)	0,001
Syncope in a warm place	8 (10)	2 (2,5)	0,01
Syncope in a crowded place	8 (10)	3 (3,8)	0,02
Syncope in a standing position	60 (75)	48 (60)	NS
Syncope in a sitting position	35 (43,8)	23 (28,8)	NS
Syncope in a supine position	4 (5)	9 (11,3)	NS
Syncope during walking	25 (31,3)	16 (20)	NS

Annotations: n — number of patients, Data are reported as the mean value ± SD or number (%) of patients.

Abbreviations: SD — standard deviation, NS — non significant.

Table 4

The comparison of the frequency of the occurrence of prodromal symptoms in reflex and cardiac syncope patients

Prodromal symptoms	Reflex syncope n=80 n (%)	Cardiac syncope n=80 n (%)	P-value
General weakness	56 (70)	45 (56,3)	NS
Dyspnea	38 (47,5)	18 (22,5)	0,01
Heart palpitations	48 (60)	6 (7,5)	0,0001
Cold sweats	32 (40)	25 (31,3)	NS
Feeling of cold	34 (42,5)	9 (11,3)	0,0001
Feeling of heat	50 (62,5)	25 (31,3)	0,001
Visual disturbances	45 (56,3)	30 (37,5)	0,01
Tinnitus	35 (43,7)	19 (23,8)	0,01
Headache	30 (37,5)	19 (23,8)	NS
Stomachache	13 (16,3)	7 (8,8)	NS
Nausea	29 (36,3)	16 (20)	NS

Annotations: n — number of patients, Data are reported as the mean value ± SD or number (%) of patients.

Abbreviations: SD — standard deviation, NS — non significant.

Patients with a reflex type of syncope were younger compared to patients with cardiogenic syncope ($41,3\pm 16,5$ vs. $61,8\pm 12,8$; $p<0,001$), which was previously reported [7].

The syncope mechanism, depending on the studied group is presented in table 2.

The detailed analysis of patient history related to syncope

Analyzing patient history it was established that the age of first syncopal episode was significantly lower in group I compared to group II.

In group I presyncopal and syncopal episodes as well as syncope without prodromal signs were observed more frequently.

Considering the circumstances in which syncope occurred reflex syncope was more prevalent in warm or crowded places.

Data are presented in table 3.

The comparison of the frequency of the occurrence of prodromal symptoms in reflex and cardiac syncope in the studied groups

The mean number of syncope without prodromal signs in group I was $4,7\pm 1,3$, whereas in patients from group II was $3,4\pm 1,6$ (statistically insignificant difference).

The conducted analysis revealed that dyspnea, heart palpitations, feeling of cold or heat, visual disturbances and tinnitus were significantly more prevalent in patients with reflex syncope ($p<0,01$). These data are presented in table 4.

Discussion

The first stage of syncope examination according to the current ESC guidelines [1] is the preliminary assessment consisting of detailed clinical history, among other things.

Properly taken clinical history guides further diagnostic process. Clinical history should particularly include questions regarding the occurrence and the duration of prodromal signs, the circumstances of a syncopal episode, the number and the duration of syncopal episodes and potential symptoms occurring after regaining consciousness [8, 9].

Some parameters, potentially significant in the differential diagnosis were observed comparing history of reflex syncope patients to history of cardiac syncope patients.

The main and essential parameter differentiating the two groups of patients is the suspicion of cardiac disease,

which allows predicting cardiac syncope with high sensitivity and specificity. Similarly, the absence of cardiac disease suspicion enables the prediction of reflex syncope with high sensitivity and specificity.

In the presented study we confirmed that patients with reflex syncope are significantly younger compared to patients with a cardiac cause of syncope ($41,2 \pm 15,7$ vs. $62,1 \pm 13,1$).

On the basis of the epidemiological data about 40% of young people suffered from at least one episode of syncope before the age of 30. About 60–70% of the above-mentioned cases are related to reflex syncope which does not influence life expectancy [10].

However, recurrent reflex syncope in particular can adversely affect the quality of life. Older age is a significant prognostic factor due to the fact that cardiac syncope is connected with a significantly higher risk of death, including sudden cardiac death [11].

Based on other studies, the reason for a higher mortality in the group of older patients is not syncope itself. In fact, the reason is the presence of primary disease [12].

On the other hand, prognosis in young patients with excluded functional or structural heart disease is very good [13, 14].

In the present study, the data obtained from clinical history such as young age at first syncope, a large number of presyncopal episodes and syncopes differ significantly

between the investigated groups and suggest a reflex type of syncope.

Similarly, the circumstances of syncope such as warm and crowded places are more often related to reflex etiology of syncope.

Prodromal signs such as dyspnea, palpitations, cold sweats, feeling of cold or warm, blurred vision and tinnitus suggest reflex etiology.

The remaining analyzed prodromal signs show no differences regarding the occurrence between the two investigated groups.

The results of the study demonstrate that appropriate questions, which provide clear and relevant answers, enable preliminary differentiation between reflex syncope and other types of syncope [8].

Conclusion

In conclusion, taking detailed clinical history enables preliminary differentiation between cardiogenic and reflex syncope, which based on the ESC guidelines, is the most important part of syncope evaluation next to individual risk stratification.

The results of the presented study may be helpful in improving the diagnostic process of syncope and simultaneously may be useful in avoiding unnecessary investigations and reducing costs of the diagnostic process in patients with syncope.

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