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Assessment of Knowledge of Nursing and Midwifery Students as Well as of Medical Carers on Dealing with Syncope

Ocena wiedzy studentów pielęgniarstwa, położnictwa i opiekunów medycznych na temat postępowania w omdleniach

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Abstract

Introduction. Syncope is defined as a state of short-term loss of consciousness with reduction of muscle tone due to insufficient hypoxic brain. It is characterized by a sudden onset and spontaneous, complete subsiding. Approximately 30–40% of all syncopes of unclear origin represent vasovagal syncope which are the most common type among children, young people (75–85%) and in people in old age. Syncope is a common condition, and any loss of consciousness always causes concern the patient and his/her relatives. A strong sense of the disease and the risk of even life-threatening situations accompanying syncope reduces comfort and quality of life. The leading method of treatment of vasovagal syncope is to educate the patients and their families. Good education of the patient helps to avoid situations that lead to the development of a vasovagal reaction and also helps to learn the proper procedure when dealing with prodromal symptoms. A nurse has a great role in the education, therefore it is so important for her to know the basic rules of syncope prevention.
Aim. The aim of the study was to assess the knowledge of learners of medical sciences on dealing with syncope.
Material and Methods. The survey involved 133 patients, including 66 (49.6%) first-year students of the second degree in nursing (12 — part-time students and 54 — full-time students), 39 (29.3%) first-year students studying the second degree in midwifery (21 full-time students and 18 — part-time) and 28 (21.1%) trainees studing to be a medical caretaker. The applied research method was a diagnostic study conducted with the use of an anonymous survey questionnaire, which contained only closed questions.
Results. 75% of the study group has witnessed syncope and a vast majority (97.7%) declare they know how to help the person who fainted, and who presents prodrome symptoms (98.5%). In order to assist the person who fainted most respondents indicated the answer: "opening a window" (95.4%) and "lifting the legs up" (92.4%), whereas 29 respondents said that the person who fainted should be given a glass of water (21.8%). In the event of syncope symptoms most respondents would recommend leaving the stuffy air (93.9%), change in body position to lying or sitting and lifting the lower limbs (75.93%). The smallest number of the answers obtained referred to cough provoking (18.0%), trotting (9.02%), abdominal flexion (9.77%) and clenching the fists (5.26%).
Conclusions. The study group was characterized by a good general knowledge of the proceedings in syncope, with a better knowledge shown by people with higher education. More rarely the respondents demonstrated the knowledge on behavior in the case of prodromal symptoms, such as the use of cough, tripping and arms and wrists straining. **(JNNN 2016;5(2):40–45)**
Key Words: neurocardiogenic syncope, vasovagal syncope, education, prevention

Streszczenie

Wstęp. Omdlenie określane jest jako stan krótkotrwałej utraty świadomości wraz z obniżeniem tonusu mięśniowego w wyniku niedostatecznego niedotlenienia mózgu. Charakteryzuje się gwałtownym początkiem i samoistnym, całkowitym ustąpieniem. Około 30–40% wszystkich omdleń niejasnego pochodzenia stanowią omdlenia wazowagalne

i są najczęstszym typem omdleń wśród dzieci i młodzieży (75–85%) oraz u osób w wieku starszym. Omdlenie należy do częstych objawów, a każda utrata przytomności zawsze budzi niepokój pacjenta i jego bliskich. Silne poczucie choroby, a nawet zagrożenia życia, które towarzyszy omdleniom powoduje obniżenie komfortu i jakości życia. Wiodącą metodą leczenia omdleń wazowagalnych jest edukacja pacjenta i jego rodziny. Dobre wyedukowanie pacjenta pomaga uniknąć sytuacji, które doprowadzają do rozwinięcia się reakcji wazowagalnej, a także pomagają nauczyć się prawidłowego postępowania w momencie pojawienia się objawów prodromalnych. Ogromne znaczenie w edukacji odgrywa pielęgniarka, dlatego tak ważne jest aby znała podstawowe zasady profilaktyki omdleń.
Cel. Celem pracy była ocena wiedzy osób uczących się zawodów medycznych na temat postępowania w omdleniach.
Materiał i metody. Badaniami ankietowymi objęto 133 osoby, w tym 66 (49,6%) studentów pierwszego roku II stopnia na kierunku pielęgniarstwo: (12 studentów niestacjonarnych i 54 — stacjonarnych), 39 (29,3%) studentów pierwszego roku studiów II stopnia na kierunku położnictwo (21 studentów dziennych i 18 — zaocznych) oraz 28 (21,1%) osób uczących się zawodu opiekuna medycznego. Zastosowaną metodą badawczą był sondaż diagnostyczny przeprowadzony z użyciem anonimowego kwestionariusza ankiety.
Wyniki. 75% badanej grupy było świadkiem omdlenia i zdecydowana większość (97,7%) deklaruje, że wie jak pomóc osobie, która zemdlała oraz u której występują objawy prodromalne (98,5%). Aby udzielić pomocy osobie, która zemdlała najwięcej respondentów wskazało odpowiedź: „otwarcie okna" (95,4%) oraz „uniesienie nóg do góry" (92,4%), natomiast wśród 29 osób uzyskano odpowiedź, że osobę, która zemdlała należy napoić szklanką z wodą (21,8%). W przypadku wystąpienia objawów zwiastujących omdlenie najwięcej respondentów poleciłoby opuszczenie dusznego powietrza (93,9%), zmianę pozycji ciała na leżącą lub siedzącą oraz uniesienie kończyn dolnych (75,93%). Najmniej uzyskano odpowiedzi dotyczących prowokowania kaszlu (18,0%), dreptania nogami (9,02%), zgięcie brzucha (9,77%) i zaciskanie pięści (5,26%).
Wnioski. Badana grupa charakteryzowała się dobrą ogólną wiedzą na temat postępowania w omdleniach, przy czym lepszą wiedzą wykazały się osoby z wykształceniem wyższym. W badanej grupie rzadziej wykazywano się wiedzą zachowań w przypadku wystąpienia objawów prodromalnych takich jak stosowanie kaszlu, dreptanie w miejscu oraz napinanie ramion i nadgarstków. **(PNN 2016;5(2):40–45)**
Słowa kluczowe: omdlenia neurokardiogenne, omdlenia wazowagalne, edukacja, profilaktyka

Introduction

Syncope is a transient, not requiring intervention to return the output loss of consciousness, which is characterized by sudden, rapid onset and the total return of consciousness. Created as a result of systemic hypotension which causes a generalized reduction in cerebral perfusion. Short-term interruption of blood flow through the brain, lasting about 6–8 seconds, is sufficient to cause fainting. Syncope which is only a symptom, will comprise from 1% to 6% of all the major cause of hospitalization [1,2]. According to the classification of the European Society of Cardiology syncope can be divided into: reflex due to orthostatic hypotension and syncope cardiac [2]. Most often they appear in young people — before 30 years of age and as shown by the Framingham study — in people over 70 years of age [3,4]. It is estimated that 15% of children and adolescents up to 18 years of age experienced at least 1 episode of syncope [5,6]. 60–80% of syncope of unclear origin regard vasovagal syncope referred to as neurogenic or neurocardiogenic [5]. Vasovagal syncope is the result of disorders of autonomous control reflex (baroreceptor reflex arterial mechanoreceptors of the left ventricle and the receptor area of low pressure). In children with vasovagal syncope, which are characterized by normal cardiovascular, it constitutes autonomic dysregulation. It involves disorder of sympathetic-parasympathetic balance, the increased activity of the sympathetic nervous system [7]. It is most common for children and adolescents and predominated in females [8,9].

Although vasovagal syncope, has a mild nature, it is however an important diagnostic problem in emergency rooms and pediatric ward. Therefore, in case of loss of consciousness it is important to have an accurate knowledge of the proceedings in syncope prevention, that particularly refers to medical staff.

The aim of the study was to investigate the knowledge on dealing with syncope possessed by students of medical professions.

Material and Methods

The study included 133 respondents, including 66 (49.6%) first-year students of the second degree in nursing (12 — extramural students and 54 — stationary students), 39 (29.3%) first-year students studying a second degree in midwifery (21 full-time students and 18 — extramural) and 28 (21.1%) trainees of medical post-secondary vocational school for adults. The applied research method was a diagnostic study conducted with the use of an anonymous questionnaire, which contained only closed questions. Descriptive statistical analysis was performed using STATISTICA StatSoft. The data were collected in a database in the form of a sheet from Microsoft Excel. Statistical analysis was performed with the

use of the R environment for statistical analysis (version 3.2.4) and PAPP program (version 0.10.1). By using the Mann-Whitney test it has been verified that there are statistically significant differences between the two groups. In the analysis, the significance level was of $p<0.05$.

Results

The determined majority of respondents were women (96.2%) and only 5 male respondents (3.8%)participated in the study. In the study group there were people with higher education 105 (78.9%) whereas the remaining 28 people had high school education (21.1%). Most of the respondents were aged 18–30 years (123; 92.4%), 8 persons were aged 31–40 years (6.01%), and only two people (1.5%) were aged 41–50 years. Most of the persons were eyewitnesses to fainting — 101 (75.9%). More than half of respondents (87; 65.4%) said that among their friends there were people who had experienced syncope (72; 82.7%). 17.2% of the respondents indicated the occurrence of fainting among siblings, and 12.6% among parents. One person surveyd indicated that the syncopehad occurred in childhood.

Nearly half of respondents (44.4%) experienced loss of consciousness: once (27; 20.3%), and more than once — 32 persons (24.1%). The circumstances in which syncope among the respondents occurred are: the church (27; 45.7%), in a stuffy room (25; 42.3%), during blood collection (18; 30.5%), as a result of a sudden changes in the body (15; 25.4%), during prolonged standing (13; 22%), resulting from pain (9; 15.2%) stress (5; 8.4%) and anxiety on the back blood and during injection (4; 6.7%) and in reference to school and physical education (3; 5%).

Among the study respondents who experienced fainting, 54 people (91.5%) defined them as short — about 5 minutes, and only 4 people said that it had lasted about 25 minutes (6.7%). 26 people after regaining consciousness were confused and did not know what had happened, and where they were located (44%), 12 people after regaining consciousness were sent to the family doctor (20.3%), 4 — were taken by an ambulance (6.7%) and 3 persons were admitted to hospital (5%). In the determined majority of respondents (51; 89.5%) who experienced syncope drug treatment was not recommended, one person does not remember (1.8%), and the drugs have been used only in 5 patients (8.8%).

Almost all the people included in the research declare that they know how to help someone who fainted, and the person who feels to be about to faint (98.4%). Most responses indicated ventilation of the room (127; 95.4%), and lifting lower lumbs (123; 92.4%). 33% of the respondents helped the person who fainted, called ambulance, and 21.8% of people tried to give water. Among the intervention in case of prodromal symptoms indicating syncope, the most frequent answer was: leave the stuffy room (125; 93.9%), being in the sitting or lying position (113; 84.9%), elevation of the lower limbs (101; 75.9%) and giving water to drink (62; 46.6%). The least frequent responses included: provoking cough (24; 18%), abdominal compression by bending the body (13; 9.7%), stepping (12; 9%) and the clamping fist clenching (7; 5.2%).

According to the determined majority of respondents, regular consumption of breakfast (124; 93.2%) and increased fluid intake (122; 91.7%) — helps prevent syncope. Only half of the respondents believe that physical activity prevents recurrence of syncope (75; 56.4%) and 23.3% admit that they do not know that regular exercise prevents syncope.

The determined majority of respondents believe that syncope can be a serious health problem (107; 80.5%), 14 people are not sure (10.5%), and 12 people believe that it is not (9%). Half the respondents (76; 57.1%) believe that syncope may be associated with sudden cardiac death, 30 people believe there is no relationship (22.6%), and 27 people do not know (20.3%).

The analysis of statistical data achieved a statistically significant relationship between education and the level of knowledge about the syncope. People with higher education have a significantly better understanding of the procedure in case of syncope ($p<0.001$) Figure.

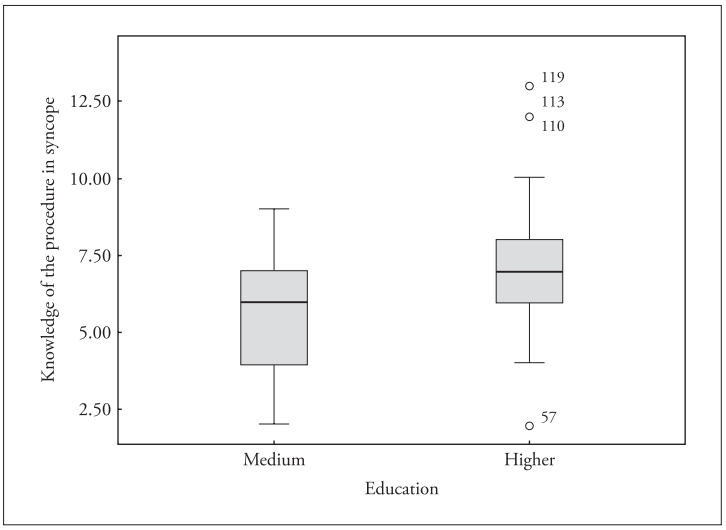

Figure. Knowledge of the respondents on dealing with syncope depending on education

Discussion

Syncope constitutes an interdisciplinary medical problem that involves a doctor primary care, pediatrics, neurologist, cardiologist and a psychologist and a team

of emergency medical services, as well as the staff at the emergency unit. Transient loss of consciousness in children and adolescents accounts for 5–10% of all intervention by medical rescue teams [10]. In our study, 33% of respondents in order to help the person who fainted call ambulance, and the determined majority of respondents believe that syncope can be a serious health problem (80.5%). In studies carried out by Bilewicz-Wyrozumska et al., they analyzed 1342 of ambulance service cases in the period between 2007–2011, from the region of eight cities in the Silesian agglomeration: Katowice, Chorzów, Siemianowice Slaskie, Swietochlowice, Mikołów, Pszczyna and Ruda Slaska. The results showed that in 5.53% of patients, the reason for the intervention of rescue teams were children with syncope (19 females) with predominant in females [11].

The assessment of medical interventions in the emergency ward due to syncope, was conducted by Opielak et al. The authors analyzed the medical records of 3201 patients from the hospital emergency unit in treated in the period of 2004–2010. They showed that syncope during that period accounted for 7.03% of all the hospitalized [12].

It is believed that in the case of patients not having heart disease on the organic substrate, the most common cause of unconsciousness was vasovagal syncope [13]. Vasovagal syncope is the most common type of reflex syncope, belonging to the heterogeneous group of functional disorders. It is extend by episodes of bradycardia or vasodilation, which results in a reduction in blood pressure associated with cerebral hypoperfusion [4]. The basic element of the diagnose vasovagal syncope is appropriate interview. The circumstances in which there the syncope occurred should be defined in detail. The interview also provides us with information on whether the patient has heart disease, arrhythmia or sudden cardiac death occurred in the family, or has had any of the neurological, metabolic, or head injuries experienced. A properly conducted interview allows to differentiate other clinical conditions such as syncope [8,9,14,15].

The characteristic diagnostic tool in vasovagal syncope is the tilt test, which used after exclusion of other causes of loss of consciousness, eg. having a cardiac or neurogenic (epilepsy) background, as well as the data from the interview indicate that the mechanism of reflex responses takes place. The test consists of inclination of the patient with a special movable table to an angle of 60 degrees with the head facing up and takes up to 45 minutes. During the test they are monitored by continuous ECG with a Holter or cardio-monitor, and the measurement of blood pressure and heart rate is being taken.

In view of the type of haemodynamic response during the test positive tilt testing, including vasovagal syncope can be distinguished:

1. Cardioinhibitory type — a sudden drop in heart rate less than 40/min or the occurrence of asystole without a significant drop in blood pressure.
2. Vasodepresive type — a decrease in systolic blood pressure below 90 mmHg, the heart rate above 60 min.
3. The mixed type — simultaneous symptomatic decrease in systolic blood pressure less than 90 mmHg and releasing the heart rate less than 60/min [16, 17].

Vasovagal syncope can be divided into two types: peripheral and central. The peripheral type as the cause of vasovagal reaction is orthostatic stress resulting from prolonged standing motionless (eg. in the church, during school ceremonies held upright), and as a result of a sudden change in body position (eg. when doing exercise during physical education lesson such as slopes, sit-ups, somersaults, overhangs down). The type of central stimulus, stimulating syncope is when the stress (emotional distress) and pain occur [18]. In our study, 61 respondents indicated in the answers regarding the circumstances of fainting specific to the type of peripheral and central type 47 — respondents.

The results of this study are difficult to compare with other studies because the reports on the role of education and prevention in children with vasovagal syncope is relatively low. Many authors focused on the clinical picture of the disease and the treatment of various pharmacological tests, which were ineffective. As it turns out, the only proven method of treatment is to educate the patient and his family and the prevention of vasovagal syncope [8]. Treatment of children with vasovagal syncope is mainly based on a thorough education with the task of changing the lifestyle of a sick child, and reassure patients and their families, explaining the mild nature of this type of syncope [15]. Education of a child with vasovagal syncope should contain the following recommendations: avoid situations that may predispose to the occurrence of vasovagal syncope, learn appropriate behavior in case of prodromal symptoms and to discuss with the child and his family the scope of training tilt testing.

Situations that predispose to the occurrence of vasovagal syncope and which should be avoided above all include: being in stuffy, warm, discharge, poorly ventilated areas; long vertical position and sudden change in body position, dehydration of the body, eating large meals, staying long fasting and skipping breakfast in their daily meals, low intake of salt in the diet and lack of physical activity. In the prevention of syncope for practical justification special elastic stockings should be worn, covering the drumstick and thigh, and the establishment of an abdominal belt [15]. One ought to remember to lie down during blood collection. In these studies, according to the vast majority of respondents,

regular consumption of breakfast (93.2%) and increased fluid intake (91.7%) — helps prevent syncope. While only half of the respondents believe that physical activity prevents recurrence of syncope (56.4%).

A characteristic feature of vasovagal syncope is the emergence of prodrome symptoms — herald syncope [19], such as dizziness, nausea, sweating, pallor of skin, feeling hot, abnormal vision, and hearing (scotomata, tinnitus) [4]. In order to help a person in whom the prodrome occurs one should help her take a safe position sitting or lying (prevent injury during a fall), raise the lower limbs and to indicate its more discreet, less demonstrative ways of preventing syncope such as provoking coughing, squeezing the abdomen by bending the trunk, tightening the muscles of the arms, clenching the person's wrists, tightening the muscles of the lower limbs (ie. Isometric ontractions), moving them in a standing position, crossing legs, balancing: toes — heel, marching in place, changing the standing position "from foot to foot", standing on tiptoe [9,15].

In our study, the respondents in the case of prodromal symptoms, preceeding syncope, most often pointed to leaving the stuffy room (93.9%), taking a sitting or lying position (84.9%), lifting the lower limbs (75.9%) or drinking water (46.6%). In their answer the smallest numer of respondents indicated provoking cough (18%), abdominal compression by bending of the body (9.7%), stepping from one foot to another (9%) and clamping fists (5.2%).

Tilt training modulates receptors responsible for the occurrence of syncope. It is used in highly motivated patients with recurrent syncope. Education in the use of tilt testing training means conveying appropriate instructions (procedures) to carry out training. It informs the patient about the duration of the training, which should start from 5 minutes in the morning, in the presence of a belayer, draws attention to lengthening the duration of one's workout until the maximum time is reached — 45 min. If during the exercise fainting takes place, the training ought to be shortened by 5 minutes, ie. to the duration from the previous day, on which while doing the exercise fainting did not occur [15,16]. Other authors report that the first phase of a two-weektilt testing training is sleeping in bed, rotated 10 degrees from the horizontal position. In the second stage it is advisable to practice twice a day for half an hour, standing against the wall in the presence of an accompanying person (eg. family member) [20].

In young adults 6% of syncope, it is the cardiac syncope, which is associated with the risk of sudden cardiac death [4]. It is believed that fainting may be the first sign of danger of sudden cardiac death, particularly if accompanied by the occurrence of cardiac arrhythmias, structural heart defects, the occurrence of atrial myxoma, pulmonary hypertension of a primary long QT syndrome (LQTS syndrome) and right ventricular arrhythmogenic dysplasia as well ashypertrophiccardiomyopathy [19]. In this study, only half of respondents (76; 57.1%) admit that syncope may be associated with sudden cardiac death, 30 people believe there is no relationship (22.6%), and 27 people do not know (20.3%).

Vasovagal syncope should be differentiated from other clinical units manifesting loss of consciousness, such as seizures, poisoning, intentional (demonstration) imitating the behavior of syncope [2,21,22]. The prognosis of syncope is very good, especially in young patients, in whom there is no functional or structural heart disease [4]. However, each syncope, especially syncope of unknown origin that occurs in young people, who were previously perceived as healthy, causes big fear for both patients and their families [23]. Essentially impaired quality of life, especially when converted [4]. Therefore, it is important to know the basic principles of diagnosis and educational recommendations in order to prevent syncope.

Conclusions

1. The study group rarely demonstrated knowledge of behavior in case of prodromal symptoms, such as the use of cough, local toddling as well as arm and wrist tensioning.
2. The study group was characterized by normal, general knowledge on dealing with syncope, with a greater level of knowledge demonstrated by people with higher education.
3. Education for the prevention of vasovagal syncope of patients and their caregivers is the leading treatment for this disease, so it is important to know the basic principles of education for nursing staff.

Implications for Nursing Practice

The main goal of treatment in patients with vasovagal syncope is to improve the quality of life, prevention of recurrence of syncope and limiting physical injuries. Drug treatment is ineffective, because the treatment of reflex syncope and orthostatic importance of patient education and prevention. It is important that the patient should learn appropriate behavior in the event of prodromal symptoms which trigger fainting. The role of nurses, in addition to the care, is to educate the patient with syncope. The nurse has more frequent contact with patients than other personel members and and therefore, by means of educational activities can help the patient and their carers to develop appropriate health behavior, preventing against syncope.

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