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Are pregnant women prepared to provide first aid to their newborns?

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ABSTRACT

INTRODUCTION: Life-threatening conditions occurring in the first months of child's life usually happen in the presence of witnesses who are at the same time the parents or caregivers of the victim. In such situations, provision of first aid increases their chance of survival. The knowledge and skills in this area should be taught already during antenatal classes. The study aimed to assess the level of knowledge and awareness of pregnant women around first aid for newborns and infants.

MATERIAL AND METHODS: The study was conducted in a department of gynaecology and obstetrics in Warsaw in Q1 2021. A research tool in the form of an original knowledge test was prepared. The test covered the knowledge of resuscitation, burns, convulsions, anaphylaxis, fever, aspirations and disturbances of consciousness. Statistical analysis was conducted with the Shapiro–Wilk test and Spearman's rank correlation test and the results were interpreted according to J. Guilford's classification. A p-value < 0.05 was accepted as statistically significant.

RESULTS: 238 women were enrolled in the study, aged 30.86 years on average (SD±4.86). Nearly a half (48.3%) of them was in their first pregnancy. The antenatal classes had been attended by 57.6% of the women; 35.7% had undergone first aid courses during those classes. The mean self-assessment of knowledge of the pregnant women was 3.36 (SD±0.97) and the mean self-assessment of their skills 3.16 (SD±0.96) on the five-point Likert scale. The correct answer average was 5.98 points. (SD±1.75) on a 0-10 scale. The largest gaps were demonstrated in the flowchart of management of cardiac arrest and disturbance of consciousness.

CONCLUSIONS: The knowledge and skills of pregnant women regarding first aid stand at an average level. The results suggest the need for implementation of proper courses in first aid in the curriculum of antenatal classes.

KEY WORDS: First aid, knowledge, antenatal classes, infants, newborns, life-threatening conditions.

INTRODUCTION

First aid encompasses actions aiming to provide aid and implement preliminary care over a victim in an emergency. These actions include protection of life, provision of relief, prevention of further disease and more [1]. Children differ significantly from adults in anatomical and physiological terms. Furthermore, every stage of the child's development is characterised by specific parameters. Therefore, the rules of providing first aid to an injured child differ depending on their age [2,3].

Emergency conditions in infancy and childhood account for 5% of all events to which medical response teams (MRTs) are called [4]. It has already been proven that the quicker aid is provided, the higher the chances of survival and the lower the risk of complications are [5]. When a child's health deteriorates, its parents and caregivers are usually the first persons to be able to notice the first disconcerting symptoms. It is them who shoulder the responsibility for quick response. Teaching parents and caregivers to identify and take proper action to solve problems threatening the life of the mother and her newborn delays their transport to emergency departments [6]. In the face of this, it is immensely important for education of parents-to-be to be provided at a sufficiently high level. Participation in antenatal classes should allow parents-to-be to prepare for their future obligations and to learn how to provide first aid [7]. To this end, different teaching forms are used, covering both stationary classes and multimedia materials [8].

It is known that parents experience strong emotions during resuscitation of their child. Studies show that parents in such moments feel "overwhelming chaos", which might suggest that at the time when first aid has to be provided to their own child, they find it immensely difficult [9]. This is why it is so important to learn the rules of providing first aid: to be able to immediately take action once an emergency happens. The study aimed to assess the level of knowledge of pregnant women of first aid for newborns and infants. An attempt was also taken to determine the self-assessment of mothers-to-be as to their knowledge and skills and factors were sought that affect the women's knowledge of first aid for newborns and infants.

MATERIAL AND METHODS

The study was carried out from January to March 2021 in a gynaecology and obstetrics hospital in Warsaw (Poland). The study group included pregnant women from department of gestational pathologies and from a department of obstetrics. The results obtained from the knowledge tests taken by them were analysed. The participants expressed their informed consent to participation in the study. Subject-matter questions on first aid aimed to check the knowledge of cardiopulmonary resuscitation (CPR) and management of burns, convulsions, anaphylaxis, fever, aspiration and loss of consciousness. Every correct answer gave 1 point. Every incorrect answer left a participant with 0 points. A maximum of 10 points could be achieved in the test. The study was conducted under peaceful conditions, without time pressure. An appointed observer ensured that every participant wrote the test all by herself. A consent of the bioethics committee had been obtained (resolution 4/2021 of 7 January 2021).

The statistical analysis involved the Shapiro–Wilk test. Spearman's rank correlation test was used to calculate the variable correlation significance according to J. Guilford's classification. A p-value of < 0.05 was accepted as statistically significant.

RESULTS

Study group

238 women were enrolled in the study. The mean age was 30.86 (SD±4.86). 61.8% of the respondents (n=147) declared that they lived in a city of more than 100 thousand. 22.7% of the respondents (n=54) stated that they lived in a city of below 100 thousand. Merely 15.5% (n=37) of the women declared that they lived in the country. Most of the respondents – 71.4% (n=170) – stated that they had tertiary education. Secondary education was declared by 27.3% (n=65) of the women. Only 1.3% (n=3) declared lower secondary education. Nearly a half of the pregnant women – 48.3% (n=115) – stayed in hospital due to their first pregnancy. Graviditas 2 accounted for 32.4% (n=77) of the participants. Graviditas 3 accounted for 15.5% (n=37) of the women, and graviditas 4 – 3.8% (n=9). Over a half of the respondents – 57.6% (n=137) – participated in antenatal classes. A vast majority of the women (n=85; 62.04%) attending such classes attended a first aid course as part of them.

The most frequent (n=28) reason which the women gave for not attending antenatal classes was the COVID-19 pandemic. The next reason was the absence of need for participating in the course (n=20). In addition, the participants also declared possession of sufficient knowledge as the reason for not attending antenatal classes (n=18). The mean self-assessment of the women's knowledge was 3.33 (SD±0.97) and the mean self-assessment of their skills was 3.16 (SD±0.96) in the Likert scale (1-5).

Knowledge test

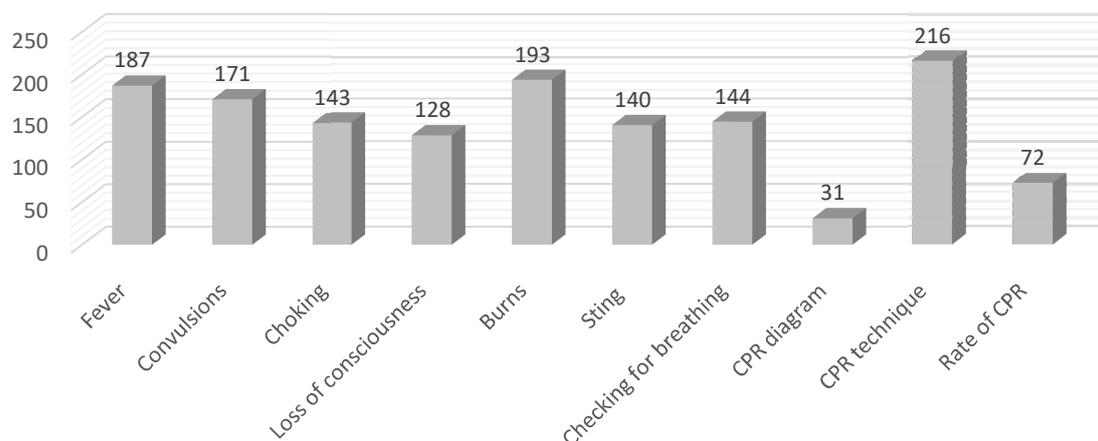


Figure 1. Knowledge test thematic categories.

The mean number of correct answers in the knowledge test was 5.98 points (SD±1.75) on a 0-10 scale. The most correct answers were given in the question about PCR technique. Other questions which did not pose many problems related to burns, fever and convulsions, in that order. The respondents found it the most difficult to provide the CPR flowchart and the rate of chest compressions (Fig. 1). No participant obtained all points (10) in the test. Merely 7.1% (n=17) of the participants obtained 9 points. Only 14.3% (n=34) scored 8 points. Most of the respondents – 21% (n=51) – obtained 6 points. Slightly fewer, 20.6% (n=49), scored 5 (Fig. 2).

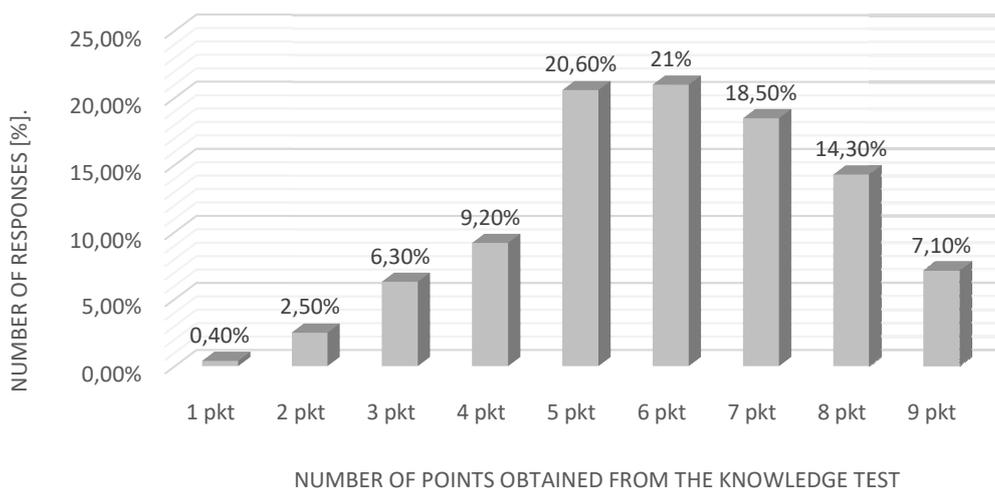


Figure 2. Percentage distribution of points obtained in the knowledge test.

Statistical Analysis

The Shapiro–Wilk test demonstrated normal distribution only for the variable concerning the age of the participants ($p=0.104$). The other data did not demonstrate features of normal distribution. Therefore, a range of Spearman's rho non-parametric tests were carried out in the study. The coefficient of correlation between the final result of the knowledge test and age ($p=0.907$), place of residence ($p=0.522$), education ($p=0.667$), participation in antenatal classes ($p=0.211$) and participation in a first aid course ($p=0.234$) proved statistically insignificant. Only the correlation between the test result and the number of pregnancies ($p=0.088$) suggests a significant result according to J. Guilford's classification. The more pregnancies the respondents declared, the higher their result in the knowledge test was. The self-assessment of the women regarding their knowledge of first aid for newborns did not correlate with the final result ($p=0.719$).

DISCUSSION

A lot of factors lead to difficulty assessing the health of a newborn and diagnosing conditions threatening its life. In the pre-hospital setting, before the medical response team arrives, it is the parents/caregivers who play the crucial role in providing first aid. The quickest possible diagnosis of threat and immediate and correct action are the foundation. The study aimed to check the level of knowledge of mothers-to-be.

The results indicated that the knowledge of the mothers was insufficient. The mean of the knowledge test result being 5.98 points out of 10 is an average result, reaching 59.8%. Therefore, a question arises: what is the cause of such a low level of knowledge of women? What factors affect the knowledge of the basic rules of providing of first aid? Are the gaps in knowledge the result of not attending antenatal classes or of their limited hourly and thematic scope?

Studies show that after the programme "Home-Based Life Saving Skills" (HBLSS) – covering topics of threat to the mother's and her newborn's health and life – was introduced in the village of Uttar Pradesh (India), the awareness and satisfaction of the mothers increased. This could be achieved thanks to the involvement of the medical and obstetric staff [10]. Results suggest the ability to raise awareness and expand knowledge of parents thanks to larger and coordinated involvement of the medical staff in the teaching process. Improvement in quality of courses and their cyclical nature allow the witnesses of an emergency to bring their stress under control.

A poor correlation between the test result and the number of pregnancies was found ($p=0.088$), which means that as the higher the number of pregnancies was in the study group, the more knowledge they had. The correlation most probably results from the experience gained by the women in their previous pregnancies and when they were taking care of their own children. They were already experienced observers of their newborns' behaviours and had familiarised themselves with their physiology, which made it easier for them to identify deviations from the norm. They already knew what behaviours should be a cause for concern. They had also learnt what factors may lead to improvement or deterioration of their newborns' condition. Moreover, some of the women went to antenatal classes again where they could revise and consolidate individual procedures. Unfortunately, a large part of the respondents in their second or third pregnancy resigned from attending antenatal classes again, influenced by the lack of such a need.

In the test, the authors emphasised the topic of cardiopulmonary resuscitation (CPR) of the newborn, which covered a question about the CPR flowchart, CPR technique and the rate of chest compressions. Out of those three topics, the most correct answers (90.8%) were given in the question about the basics of the technique. However, the detailed question (the rate of chest compressions) was answered correctly only by 30.3% of the respondents. The highest difficulty was posed by the question about the CPR flowchart – merely 13.0% of the women answered this correctly. It is very comforting that the women knew which technique to apply to resuscitate a newborn. However, they did not possess knowledge of the CPR flowchart.

Studies show that skills of resuscitation of newborns in the medical staff start to atrophy already 1 month after the course. Therefore, it is required to repeat the activity cyclically, particularly by persons without medical education [11]. The curriculum of the course in resuscitation of newborns run for the medical staff suggests that the knowledge and skills learnt during the course may reduce newborns' death rate even by 30%. It is worth considering implementation of similar curricula for parents-to-be [12,13].

High awareness of parents translates into better understanding of the stages of labour and the mother-child communication. Studies have found that involvement of the man in the health of the mother and their child has a positive effect on care and reduces risk of the child's death [14]. As generally known, delivering a healthy newborn is the priority both for the parents and medical staff [15]. Antenatal classes cover most problems related to the care for newborns. Although they are run by a qualified obstetric and psychological staff, they frequently lack classes on first aid in emergencies. This might be due to the shortage of funds for employment of additional lecturers in this field. 57.6% of the participants attended antenatal classes, but only 35.7% out of them had classes in first aid.

The curriculum of a Warsaw antenatal school operating under *resolution no. XXI/544/2019 of the Council of the Capital City of Warsaw of 7 November 2019 on approval of the "Antenatal School" antenatal education curriculum for 2019-2022* did not include classes on first aid. All classes focused on care for the newborn, lactation, psychological advice regarding the new life role and aspects of possible legal support for the mother and her child [16].

The self-assessment of the women regarding their knowledge of first aid for newborns did not correlate with the final result ($p=0.719$). Most of the women overstated their self-assessment of their knowledge and skills. The more self-confident the woman, the higher the percentage of incorrect answers she gave. The coefficient of correlation between the final result of the knowledge test and age ($p=0.907$), place of residence ($p=0.522$), education ($p=0.667$), participation in antenatal classes ($p=0.211$) and participation in a first aid course ($p=0.234$) proved statistically insignificant. To sum up, the knowledge and skills of pregnant women regarding first aid for the newborn stand at an average level.

Study Limitations: The studies were conducted in one centre and in a difficult period of the pandemic. This caused different limitations, e.g. antenatal classes were held online or without all instructors. The situation could affect the quality of education of mothers-to-be and the final result. Due to scarcity of studies in the current literature regarding the knowledge of mothers-to-be of first aid for newborns, it is difficult to compare the obtained results with those of other authors. The experiences obtained from assessing the education of the medical staff suggest some solutions which could prove effective also among pregnant women as people without medical background. The results also suggest the necessity to implement a mandatory course in first aid in the curriculum of antenatal schools.

CONCLUSIONS

The knowledge of pregnant women of first aid for newborns is at an average level despite attending antenatal classes. Particular gaps were demonstrated in the knowledge of resuscitation. The results suggest the necessity to implement a mandatory course in first aid in the curriculum of antenatal schools and cyclical reminding classes.

SUPPLEMENTARY INFORMATION

Funding: This research received no external funding.

Institutional Review Statement: The study was conducted according to the guidelines of the Declaration of Helsinki.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest: The authors declare no conflicts of interest.

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