

Mothers' knowledge of administration of first aid to preschoolers in choking incidents

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Abstract

Introduction. The level of knowledge of first aid administration in choking incidents amongst mothers of preschoolers, who are at a higher risk of injuries, is of great importance for the safety of children in health- and life-threatening incidents.

Aim. To assess the knowledge of mothers from the Świętokrzyskie province regarding first aid administration in choking incidents among preschoolers.

Material and methods. The study group included mothers of children aged 3-6 years from the Świętokrzyskie province. The group selection was intentional. The age ranges studied were as follows: 44% - 31-40 years of age, 42% - 21-30 years and 14% above 40 years of age. The diagnostic survey was carried out using a questionnaire designed by the authors.

Results. As much as 76% of participants would not administer first aid due to lack of knowledge and courage. Half of mothers knew proper management in cases of choking whereas less than half of them (44%) would properly restore airway patency. Every 5th mother was found to know proper management in sudden cardiac arrest cases (20%).

Conclusions.

1. The level of knowledge of mothers concerning first aid, particularly in cases of choking, was unsatisfactory. Only every 5th mother knew the current guidelines for cardiopulmonary resuscitation.
2. Despite the awareness of a legal obligation to administer first aid by witnesses of incidents, only every 4th of mothers would give first aid to the affected children.
3. Practical first aid trainings should be carried out systematically, starting at the pre-school age and continuing throughout the life, which will increase the range and effectiveness of pre-medical assistance.

Key words: first aid, choking, children, mothers

Introduction

First aid is a procedure or a set of procedures provided for victims in sudden health- or life-threatening conditions. Proper administration of first aid can decide about subsequent conditions of affected individuals. In Poland, there is a legal obligation to deliver first aid regulated by the Article 162 §1 of the Penal Code; care provided to other individuals is also of ethical-moral nature

determined by an internal imperative or immanent need to assist everyone in need, especially under health- and/or life-threatening conditions. The key assumption of premedical activities is to provide aid as quickly as possible to prevent possible health-related complications until medical assistance has been available [1].

Every man, regardless of age, is exposed to a variety of dangers and risks, which can lead to

various injuries and traumas. The most hazardous situations are those with sudden cardiac arrest. In such cases, only efficient, quick and appropriate rescue activities enable proper health maintenance or even survival. Such situations include choking in children when an object or food is not coughed up and blocks the airway. Considering the above, the knowledge of first aid principles in cases of choking whose incidence is higher in small children, is essential for health maintenance and survival.

Material and methods

The study group included mothers of children aged 3-6 years from the Świętokrzyskie province. The group selection was intentional and the inclusion criteria were: having preschool children, no medical education and residence in the Świętokrzyskie province. The questionnaire was conducted in January 2015 and involved 68 women; due to incomplete data provided in some cases, 50 questionnaires were finally analysed. The percentages of age ranges were as follows: 44%- 31-40 years of age, 42% - 21-30 and 1% - > 40 years of age; 54 % of respondents had higher education, 42% - secondary education (grammar school) and 4%- secondary education (secondary school).

The diagnostic survey was performed using the audit questionnaire designed by the authors. The questionnaire contained 15 questions with disjunctive cafeteria. The questions regarded the knowledge of first aid administration in cases of choking and management of children with sudden cardiac arrest.

Results

The study encompassed 68 mothers of small children (aged 3-6 years); final analysis included 50 questionnaires. The majority of respondents (76%) were from towns; during further analysis, however, the place of residence was found not to have any

effects on the level of knowledge concerning first aid administration both in cases of choking and of sudden cardiac arrest.

In the study group, 74% of respondents participated in first aid courses (Fig.1); the courses took place at work (52%), school (36%), and healthcare institutions (8%).

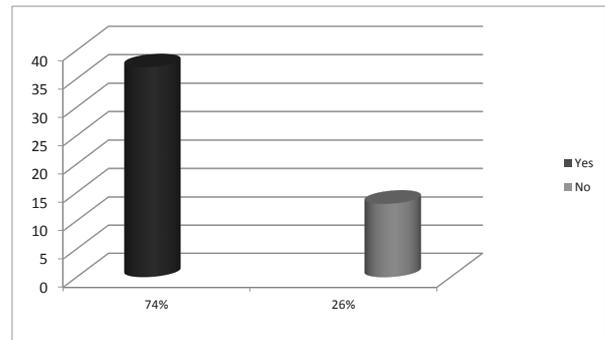


Fig. 1: Participation in first aid courses

Despite participation in courses, only 24% of respondents were sure about their knowledge of first aid administration; 58% assessed their knowledge as poor whereas 18% were not able to self-assess their skills as they were not certain that their knowledge was correct (Fig.2).

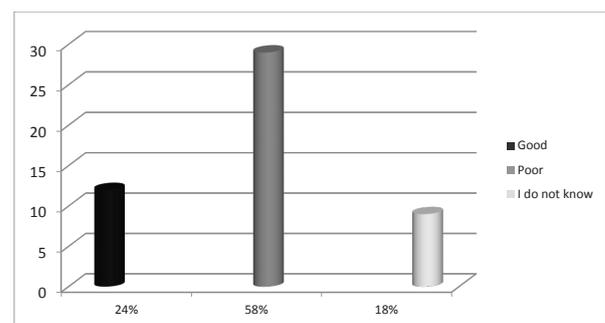


Fig. 2: Self-assessment of knowledge of first aid administration

Almost every 4th respondent would administer effective first aid in health- and life- threatening cases; 76% would abandon any assistance due to the lack of knowledge or courage.

Further analysis regarded the awareness that first aid administration is a legal obligation and demonstrated that the majority of respondents

- 37(74%) were aware of this obligation and the remaining 13% believed that first aid could be provided by trained individuals or healthcare workers (Fig.3).

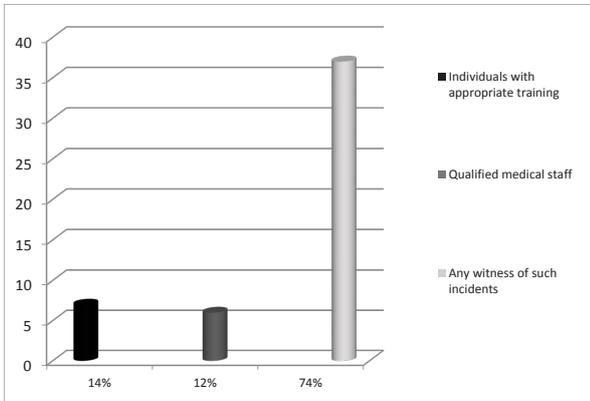


Fig. 3: Awareness of having an obligation to administer first aid in emergency cases

According to the respondents, the most troublesome conditions requiring first aid administration were: sudden cardiac arrest (30%), choking (20%), bone injuries (16%), seizures (14%), burns (12%), and external bleeding (8%) (Fig.4).

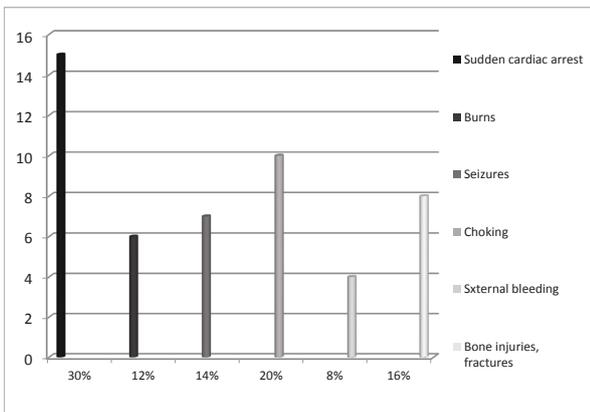


Fig. 4: Emergency cases causing difficulties in administering pre-medical first aid

The next questions concerned the management in choking cases; both the cases when a child breaths and has the cough reflex and when a victim losses consciousness were analysed. Moreover, the sequence of activities was assessed.

In cases of choking, half of respondents correctly decided that leaning of the affected child forward and 5 hits over the interscapular region were required (Fig.5).

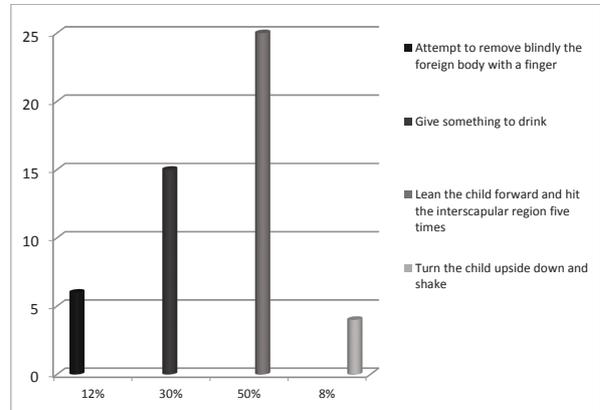


Fig. 5: Management of children in choking cases

Whenever the above attempts fail, the next appropriate activity should be five compressions of the epigastric region, which was indicated by only 4% of respondents (Fig.6).

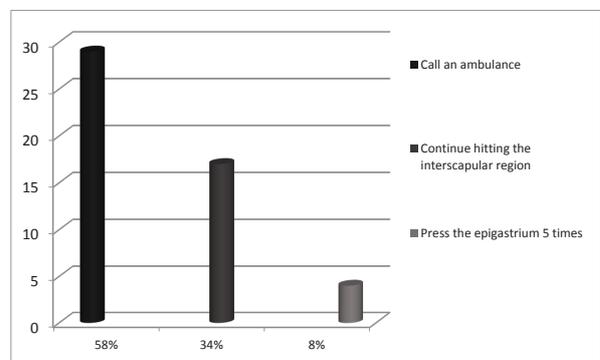


Fig. 6: Management in children in choking cases

In cases when the child chokes and loses consciousness, the priority is to maintain the airway attempting to remove the foreign body stuck there; only 10 mothers (20%) selected such procedures (Fig.7).

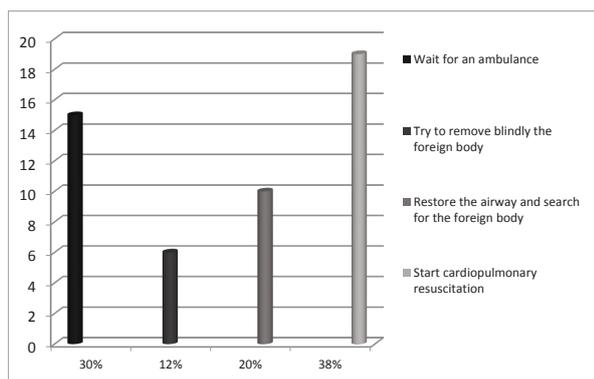


Fig. 7: The first activity undertaken when the child chokes and loses consciousness

The question about the way to restore the airway was answered correctly by less than half of respondents (44%) (Fig. 8).

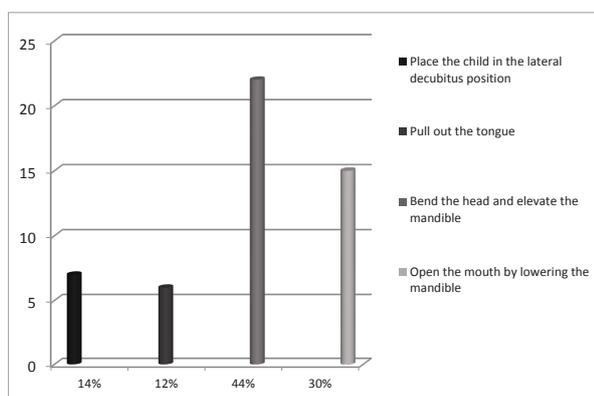


Fig. 8: Restoration of the airway

Lack of airway patency can lead to sudden cardiac arrest (SCA), which is life threatening; therefore, the algorithm of rescue management should be known. Proper management in SCA cases was described by every 5th mother (20%) (Fig.9).

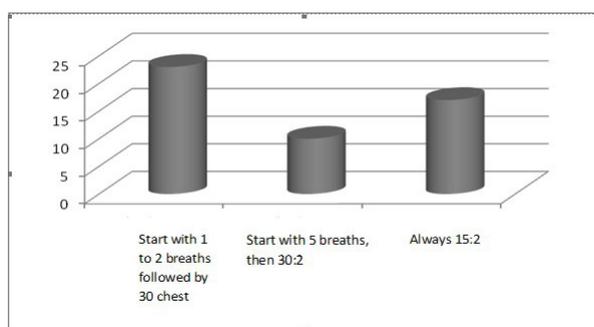


Fig. 9: The course of resuscitation

Discussion

The issues of first aid administration have been frequently analysed in scientific studies. Various professional and age groups were studied as for their knowledge regarding principles of first aid administration, management algorithms, etc. The study findings are of importance since everybody realises that the reactions of witnesses of incidents and the quality of premedical aid provided decide about subsequent conditions of victims [2]. The provision of proper first aid enables to maintain health and frequently saves life of the affected individuals.

Our study focused on the type of reactions and knowledge of mothers in choking incidents among children; the study group was studied in terms of age, education, place of residence, attitudes towards the adverse sudden health-threatening incidents, general knowledge of cardiopulmonary resuscitation. According to Lipska [3], choking incidents in children constitute 4% of calls for an ambulance, which means that the rescue activities of witnesses have been ineffective or that health-related adverse side effects of choking itself or of the activities undertaken developed. Due to their psychophysical dynamics of development, increased physical activities and lack of anticipation of consequences of their behaviour, preschool children are exposed to various types of accidents, which occur during contacts with their peers as well during everyday activities. The most common accidents in this age group include limb and faciocranial injuries, burns and choking. All the adverse incidents in children require rescue activities administered by adults prior to administration of medical assistance. Considering our earlier study demonstrating that about half of parents (of both genders) had substantial knowledge deficits regarding first aid administration in different incidents (including choking – the study accepted for publication in

2016 in Ciechanów), the present study focused on analysis of mothers' knowledge in choking cases. Moreover, administration of first aid in sudden cardiac arrest, which may develop in cases of ineffective management, was studied.

Choking incidents are all cases of airway obstruction caused by the presence of a foreign body. Clinical choking can be mild or severe. In mild cases when the affected children breathe and are conscious, they can get rid of the foreign body by effective coughing, during which the airway pressure suddenly increases and the obstructive body is expectorated. In severe choking cases, the airways close and as a result the affected child is unable to breath, talk, cough, which leads to the loss of consciousness [4] and is the life-threatening condition. The child's airways are narrow and vulnerable; therefore, irritation with even a small object is likely to constrict the respiratory organs and to prevent free airflow. The rescue activities provided as quickly as possible can affect not only later medical management but also the health and further development of the affected.

Our study findings demonstrate that $\frac{3}{4}$ of mothers were trained in first aid, yet they are not sure of their knowledge and skills (18%); 58% of them assessed themselves negatively in this respect. The above indicates unsatisfactory effectiveness of trainings, which is strongly highlighted by many authors [5,6]. The indices concerning the skills to administer first aid to children are found to be even more alarming; only 3 mothers (6%) declared to provide correct auxiliary activities; 42% reported they would not be capable of helping choking children whereas 52% were not sure about their skills. In the entire study population, 12 individuals faced emergency cases requiring pre-medical assistance albeit only every 4th administered aid. The remaining women admitted that they did not know what kinds of procedures should be undertaken; moreover, they

had no enough courage to approach the victim and offer or administer assistance. In many cases in which health or life is in danger, inactivity and indifference of witnesses were observed [7].

Choking of children requires emergent assistance, every minute counts, as the airway can be very quickly blocked and the victim can suffocate. Half of respondents did not know the management in such cases (including 16 trained in first aid and 9 with higher education). The mothers from this group were able to choose the correct alternative response in choking cases. Leaning forward of the child and five hits into the interscapular region are appropriate activities. The same number of respondents knew that when the affected child breathed and coughed, he/she should be encouraged to continue coughing, which is correct. However, 30% of respondents would give the choking child something to drink, 12 % would try to remove blindly the foreign body from the airway and 8% would shake the child, i.e. instead of helping, half of mothers could contribute to deterioration of the victim's condition. Whenever proper initial activities have failed, 5 compressions of the epigastrium should be performed (according to the guidelines of the Polish Resuscitation Council), which was known by 4 mothers; one of them had higher education while 3 completed first aid courses. The remaining 34% would continue hitting and 58% would refrains from any actions, call and wait for an ambulance with paramedics.

In cases of choking with loss of consciousness, once the ambulance has been called, the proper answer (restoration of airways) was chosen by 20% of respondents; amongst them 8 after first aid trainings and 2 with higher education. The highest number of respondents (38%) would start cardiopulmonary resuscitation without earlier airway restoration; 30% would wait for medical services while 12 % would try to remove the foreign body blindly.

In dramatic situations with sudden cardiac arrest, the four-fold higher number of respondents (12:3) was sure of their skills towards adults yet a markedly higher number of individuals were uncertain about the management in children (26:9). In both cases, the number of those who felt that their lack of knowledge and skills was high, which was confirmed by numerous studies in various social, professional and age groups [8]. The study findings regarding the professional groups, which a priori serve to protect health and safe life in hazardous incidents, i.e. water service rescuers, fire-fighters, volunteer fire-fighters and policemen, are particularly alarming [9]. Since the accidents mainly happen in places where medical services are not permanently present, such as home, school, workplace, roads, widespread knowledge about cardiopulmonary resuscitation is the main priority.

While assessing our results, it is also worth to pay attention to the knowledge about legal obligations to administer aid to victims of health- and/or life-threatening incidents, During education, work or driving licence courses, each participant is informed about the above-mentioned obligations; nevertheless a high percentage of individuals does not feel obliged to deliver assistance [10]. Our results confirm that 26% of women shifted the responsibility of rescuing health or life onto people or services trained for such purposes; similar results were reported in the earlier study carried out amongst civil servants with driving licences [11].

To sum up, our study findings reveal that the knowledge of principles of first aid administration in cases of choking of children among mothers from the Świetokrzyskie province is unsatisfactory. Moreover, it is worth mentioning that in all cases correct answers were chosen predominantly by the women who participated first aid trainings. Among the women with higher education, the number of those choosing the correct answer was lower. Considering the above data, it can be

concluded that participation in first aid courses is extremely important for the knowledge and skills obtained. Therefore, completion of first aid courses was more important than higher education. This mainly results from multiple profiles of higher schools whose curricula do not necessarily contain lectures (classes) about first aid administration, which, however, does not exclude the need to include such lectures. On the contrary, it seems necessary to organise systematic courses of first aid at all levels of education particularly that the level of knowledge of teachers does not fulfil the expectations, which has been demonstrated in numerous publications and in our studies regarding this professional population group.

In conclusion, it appears that the idea of administering assistance in emergency health- and life –threatening incidents and the principles of first aid administration should be more widely propagated in various social circles, professional and age groups. Courses should be practical and should be carried out by practitioners, i.e. emergency medical technicians and specialists in emergency medicine.

Conclusions

1. The level of knowledge of mothers regarding the principles of first aid, particularly in cases of choking in children, is unsatisfactory. Only every 5th respondent knows the current guidelines for cardiopulmonary resuscitation.
2. Despite the awareness of a legal obligation to deliver first aid by witnesses of accidents, only every 4th respondent assesses their knowledge as good; in this group every 4th mother would initiate first aid in real-life situations.
3. Practical trainings in first aid should be carried out systematically, starting at the pre-school age and continuing through the entire life, which increases the range and effectiveness of pre-medical assistance.

4. Trainings in first aid should be carried out only by practitioners, i.e. paramedics and specialists in emergency medicine.

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