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Original research article

Preliminary results of teaching first aid to 5–6 year old children – A longitudinal study

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ABSTRACT

Objective: Basic lifesaving activities should be taught in early childhood to develop helping attitude. Our goal was to teach up-to-date theoretical and practical basic first aid using the method of play for kindergarten children.

Methods: 51 children visiting kindergarten in two areas of Hungary were involved in the survey, which took place between September and November 2011. The training consisted of two sessions with theoretical and practical games about first aid. As well as the first steps, which concerned how to examine and handle an unconscious patient and how to call an ambulance, the most frequently occurring injuries were also performed in different playful situations. In the third session, children were tested on their skills and a month later they were re-tested. The tests measured the children's problem-solving skills and their basic knowledge about different scenarios requiring first aid. The statistical analysis was made with the SPSS 17.0 software using the Chi-square test and t-test.

Results: The maximum point score of the test was 38 points. The average point score of the first test was 16.94 points and the second resulted in higher scores (17.5 points). The difference between the results was significant ($p < 0.05$). The results showed attitudinal differences between boys and girls ($p < 0.05$).

Conclusions: 5 and 6 year old kindergarten children can learn the basic concepts, but fewer children are able to act adequately in complex situations. A playful method of teaching first aid can improve children's knowledge and helping attitude.

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Introduction

Sudden medical emergencies from various causes are among the most common causes of death all over the world. Most of the accidents occur at home and the victims are usually children [1]. Based on the WHO data [2], 2000 children (under 18 years old) die from accidental injuries worldwide every day. According to the European Association of Injury Prevention and Safety Promotion (EuroSafe) data, around 3000 children die from injury in the European Union (EU) every year, and this number represents 28% of all deaths of children between 1 and 14 years old [3]. The data are similar in Hungary [4]. Based on the available sources of the Central Statistical Office (KSH), 1726 home related accidents occurred in Hungary in 2014, and every year around 24,000 children are hospitalized because of various injuries, of which about 300 are fatal [5].

Laypersons have a very important role in first aid situations, because they are usually the first to detect the need for immediate help. It is well known that appropriate initial treatment may increase the patient's chances of survival. The chain of survival contains the following elements: early recognition and call for help, early cardiopulmonary resuscitation (CPR) (chest compression and ventilation), early defibrillation, and post-resuscitation care [6]. First aid activities are very often identified only with cardiopulmonary resuscitation, although first aid activities (Life Supporting First Aid, LSFA) should include other aspects of medical emergencies: calling for an ambulance, using an automated external defibrillator (AED), carrying out CPR – Basic Life Support (BLS) steps, controlling external haemorrhage and handling an unconscious patient [7]. Based on the definition of the European Resuscitation Council (ERC) [8], first aid is the provision of helping behaviour and initial care to a person with acute illness or injury. First aid can be initiated by anyone in any situation. Therefore public awareness of life supporting first aid should be given more attention.

Some researches deal with the first aid knowledge of children and their parents. In Egypt, parents with children under the age of 12 were asked about their children's previous accidents and their knowledge related to them [9]. First aid knowledge is influenced by the age of the mothers and on their educational attainment. In a Hungarian study, similar results were found [10]. Unfortunately, plenty of the parents would choose the incorrect treatment for burns (for example putting sour cream on the wound); only a few people knew the correct treatment, which is cooling with cold water [11]. Choking and suffocation are also very common among children (for example during meals, choking on small toys or drowning in water). It is not only first aid that is important, but also accident prevention [12]. In this area, there are international guidelines that provide evidence-based practices [8].

In Hungary, many people cannot apply the appropriate knowledge in the case of an emergency. Overall, the reason for being inadequately prepared may vary: fear, lack of expertise and practice, “do not harm” [13]. A study in Austria [14] showed that people do not help because they are afraid to cause more injuries. Fortunately, more and more ambulance dispatch centres can provide immediate advice to bystanders via the phone, and advise them on what to do first to help the

victim. This may also motivate the first responder to use their previous first aid knowledge [15]. Smart-phone based technology for first aid is also available, but further studies are necessary in the future [16]. Another research presented the experiences of first aid courses for lay people [17].

In Shanghai, the level of first aid knowledge among preschool staffs was investigated. It was found that preschool staff had poor knowledge of first aid in the pre-test, but these results increased after the training [18]. Several studies have tried to teach BLS for young children (with the aim of defining the age when they can easily acquire this knowledge) [6,19,20]. Some studies have investigated at what age schoolchildren can provide effective chest compressions. According to the results, it was mainly the 13–14 years old children who were able to perform adequate chest compressions, but the younger children could learn the principles of chest compression too [19,21]. The Kids Save Lives project is endorsed by the WHO, which recommends cardiopulmonary resuscitation (CPR) education from the age of 12 (or younger) [22].

One of the most recent studies, completed by De Buck et al. [23], reviewed the current scientific databases on integrating first aid knowledge into the primary school curriculum. They highlighted the importance of teaching first in schools and elaborated the evidence-based pathway for the integration of first aid training into school curricula for each age group.

Play has an important role in the development of young children. They can learn and retain new information with creative play [24,25]. In relation to first aid, we believe that situational play can be useful for learning new skills. Sometimes the difference between the appropriate age to learn the knowledge and skills can be noticed (e.g. younger children who are unable to provide effective chest compressions or ventilation can learn the cognitive parts of BLS as well as older children) [21,26,27].

Our aim in this study was to assess the changes and differences in the attitudes and skills of preschool children immediately after, and one month after the first aid training.

Materials and methods

A longitudinal research was designed to measure the effects of first aid training among preschool children. The research took place in two kindergartens in Hungary (Muraszemenye, Letenye) between September and November 2011. One kindergarten was located in a small rural village, while the other was based in a small-sized town. However, big differences in the socio-economic status of the families cannot be detected.

Participants

Our target group consisted of children aged 5–6 years. Due to the young age of the children, consent from the parents was required in order to carry out the study. Having been provided with the goals of the study and related information, all parents approved the involvement of their children by signing the necessary informed consent form. They also were informed about the right to quit the study at any time without further

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