First step for information technologies implementation into eye injury prevention programme among children

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Abstract

Purpose: About 100 cases every year serious eye injuries among children are registered in the largest Kaunas University Hospital in Lithuania. Most of prevention recommendations were prepared as written materials and in this paper is presented new experience of information technologies use in children health education. Having in mind the fact that eye injuries among children have very serious consequences, we decided to create a new kind of educational material for eye injuries prevention.

Material and methods: Statistics of in-hospital patients, who were treated at the Department of Ophthalmology in Clinics of Kaunas University of Medicine, was used for the analysis of eye injuries among children in 2001-2003 years.

Results: The retrospective study of all children admissions into Eye Department of Clinics of Kaunas University of Medicine during three years (2001-2003) was performed. Total number of 308 cases was analyzed. The analyses showed what accidents are most likely to happen; they were related with four groups of causes:
– contusion of an eye by throwing an object, e.g. a snowball,
– eye injury with explosive devices,
– eye injuries by observing adults work,
– accidents that happen while falling down.

Health education material was created using Macromedia Flash MX for children under 10 years old. The total length of it is 1.5 minutes.

Conclusions: The health educational material could be a new tool for prevention of eye injuries among children and should become a part of eye injuries prevention program in children gardens and schools.

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Introduction

Every year 100 cases of serious children's eye injuries are registered in the largest Kaunas University Hospital in Lithuania. The Department of Ophthalmology of Institute for Biomedical Research in Kaunas University of Medicine in close relation with Eye Clinic of Kaunas Medical University Hospital is involved in implementation of national eye diseases prevention and control program. The Department of Ophthalmology has a lot of experience in evaluation of eye health situation among children and preparation of preventive programs in children gardens and schools in Lithuania [1,2].
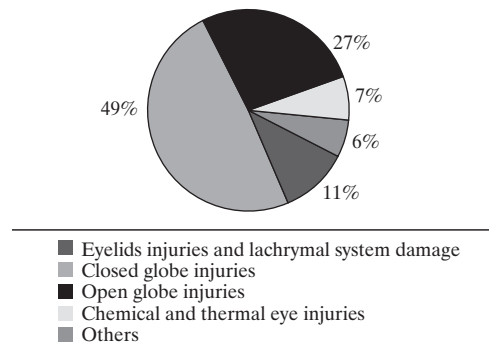
Most of recommendations were prepared as written materials and in this paper is presented a new experience of information technologies (IT) use in children health education. Having in mind the fact that eye injuries among children have very serious consequences, we decided to create a new kind of educational material for eye injuries prevention. The literature describes several examples of powerful videos about preventable burn injuries [3,4], brain and spinal cord injury [5] and others [6].

Medical doctors [7,5] and nurses [3] as well are very active in creation of videos. Unfortunately we didn't find articles, which describe the use of IT for the creation of informational animation. Our experience with educational eye injury prevention informational animation is the first case in Lithuania.

Material and methods

Statistics of in-hospital patients, who were treated at the Department of Ophthalmology in Clinics of Kaunas University of Medicine, was used for the analysis of eye injuries among children in 2001-2003 years. During those three years near 300 cases

Figure 1. **Main causes (%) of eye injuries among children (Clinics' of Kaunas University of Medicine data 2001-2003)**

■ Eyelids injuries and lachrymal system damage
■ Closed globe injuries
■ Open globe injuries
■ Chemical and thermal eye injuries
■ Others

of serious eye injuries were registered in the largest Kaunas University hospital in Lithuania. Those eye injury causes were very important for the creation of educational material. For the prevention of eye injuries among children the health education material was created. Macromedia Flash MX was applied for this animation.

Results

The retrospective study of all children admissions into Eye Department of Clinics of Kaunas University of Medicine during three years (2001-2003) was performed. Total number of 308 cases was analyzed. The distribution of major causes of eye injuries is presented in *Fig. 1*. Half of the cases (49%) were classified as closed globe injuries and nearly third case (29%) as open globe injuries. In 11% of cases eyelids were injured or lachrymal system was damaged. Chemical and thermal eye injuries were not very frequent i.e. 7%. The absolute number of eye injury cases in different groups were very similar during three year period. The analyses of eye injuries showed that they are most likely to happen as accidents and were related with four groups of causes:

– contusion of an eye by throwing an object, e.g. a snow-ball,
– eye injury with explosive devices,
– eye injuries by observing adults work,
– accidents that happen while falling down.

The health education material was created as informational animation, trying to describe the above mentioned situations in the understandable way for children. The total length of educational material is 1.5 minutes and it is easily handled by the user. The educational material is adapted for children under 10 years old.

Discussion

The creation of health educational material using information technologies was the first step of new prevention methods application in eye injury prevention program among children. Authors describe a lot of good examples when the video becomes a powerful tool for burn injuries, pedestrian related injuries among children [3,4,6], but there is no experience about the use of new information technologies for children education. Cook DJ [5] in his study have shown no difference in experimental and control groups of new cases of brain and spinal cord injury in children ice hockey players, but showed some improvement in children's knowledge, concerning the mechanism of injuries. We are going to carry out a pilot study in children gardens and schools for the evaluation of the effectiveness of educational material. We intend to show the animation to the children and check if they understand what they shouldn't do to prevent eye injuries.

Conclusion

The health educational material created using Macromedia Flash MX could be a new tool for prevention of eye injuries among children and should become a part of eye injuries prevention program in children gardens and schools.

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