



Guest editorial

Prevention of ocular firework injuries

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Worldwide, the display of fireworks belongs to great festivals to commemorate religious or national events. The display is a joy for thousands or millions of people attending those events. However, some are affected by serious eye casualties.

During the 1996 - 1997 Indian Diwali celebrations, 42 fireworks-related eye injuries were reported in Chandigarh (Arya, 2001). Rashid reported 34 eye injuries during the Aidik Fitri celebration in Malaysia. Patients ranged between 2 and 43 years of age, 70 % of them being 12 years old or below (Rashid et al, 2011). China is well-known for firework displays during New Year's Eve, the spring festival and lately during the Olympic games at Beijing. At Wuhan University, 25 eyes were treated during the spring festival in 2009 (Jing, 2010).

What can we learn from these and other reports?

Fortunately, a systemic review on the incidence, outcome and prevention of ocular firework trauma has been published (Wisse et al, 2010). Seventeen of these articles could be used for calculating trauma severity and vision loss. The combined data of 7,767 eye traumas were studied. What did we find?

Victims were male (77 %) and often bystanders (47 %). Young people under the age of 20 years were affected in more than 67 % of the cases. Most of the trauma is mild and temporary. However, 18 % accounted for penetrating eye trauma, globe contusions and burns. Severe vision loss (< 10/200) was found in 16 %, including No Light Perception in 6 %. Treatment is difficult because of infection, bleeding, loss of tissue and recurrent retinal detachment. Enucleation was performed *on average* in 4 % and in a maximum of 17 %. In conclusion, ocular fireworks pose a severe risk of vision loss especially to young innocent bystanders. Reduced vision of one eye will affect social life and binocularity necessary for many jobs. Young people are affected for many expected life years.

What can ophthalmologists do?

Since the treatment options are limited, we need to focus on prevention. Indeed, an editorial on ocular traumatology was called 'prevention, prevention, prevention' (Kuhn, 2010).

But what does 'prevention' mean in ocular fireworks trauma?

The only proven method to reduce ocular firework trauma is restrictive legislation of the personal sale and use of fireworks. This should be combined with the display of firework by professionals only. This method

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has been proven effective in several countries (Wisse, 2010).

This scientific truth is easier said than implemented for various reasons. First of all, democratically-elected governments will, by nature, follow the majority of their flock and not a minority of their ophthalmologists. Second, large financial interests are involved in the sale of fireworks. Thirdly, great festivals are an integral part of human culture.

The way forward for ophthalmologists is to make the public aware of the side effects of personal firework. For example, ask a patient permission to show the effects of his or her eye injury in your local newspaper or television. A child or a well-know person is most effective for this purpose.

Motivate all ophthalmologists in your country to register all eye injuries during a festival. The registration paper should be as short as possible and web-based in order to get a maximal and quick response. Ideally, you can report on the national scale of injuries the following day. Emphasize your joy and commitment to great festivals, but in a professional and organized way.

Contact other medical colleagues to join you in a national publication campaign. Plastic surgeons are confronted with the loss of fingers or hands or face injury.

Concerning politics, it is our experience in the Netherlands that the top-down approach did not work, has not, yet. The prohibition of certain types of fireworks did not reduce the number of works trauma. On the contrary, an increase of firework trauma was seen after the increase of the maximum-allowed explosive powder from 250 to 500 grams in 2007 in the Netherlands. The problem is that, internationally, thousands of different legal fireworks devices exist, not to mention the innumerable illegal homemade fireworks.

The bottom-up approach has yielded some success. Some small villages or towns have decided to discourage private fireworks and promote a central display of fireworks. It is a long way, but don't forget the fight against smoking. In Europe, it has taken 10 - 20 years before the public domain has become smoke free. A smoker has become an outcast in pubs and restaurants. So here we have the challenge for us ophthalmologists if we want to help the future victims of ocular firework injuries: come out of your clinics and don't give up!

Any more suggestions and reactions are welcome.

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