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BAN ON FIRE CRACKER SALE: ITS IMPACT ON FIRE WORK INJURIES IN PEDIATRIC POPULATION IN DELHI - NCR REGION AT A PEDIATRIC TERTIARY CARE CENTRE.

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ABSTRACT Ban on Fire Cracker Sale: Its Impact on fire Work Injuries in pediatric population in Delhi - NCR Region at a Pediatric tertiary care centre.

Objective- Our goal was to study the impact of recent legislation on firework related injury in pediatric population in Delhi NCR region.

Method- This was an observational study in which data was collected one day before, after and day of diwali in year 2016 and 2017 retrospectively. Data was recorded in a pro forma of all children below 18 years with fireworks related injury presenting coming to our emergency.

Results- Incidence of fire work related injury decreased significantly by up to 90% in year 2017 compared to year 2016. Maximum patients were seen in group of 11- 15 years. Most common injury was related to anar (fountain cracker). Most common site of injury was hand followed by face.

Conclusion- We recommend implementation of such strict legislative laws limiting sale and use of crackers across the country which can decrease the number of fire work related injuries.

KEYWORDS :

Introduction- In India, diwali is considered as a festival of lights and is celebrated with candles and fireworks. Air pollution during diwali in 2016 raised the particulate matter level by three times, making delhi one of the worst city in world in term of air pollution. Hence, Honorable Supreme Court of India put a ban on the sale of fire crackers in Delhi NCR region two weeks before diwali in 2017. This was to test whether a diwali without fire crackers could have a positive effect in controlling air pollution. This study was done to study the impact of this legislative law on firework related injuries in pediatric population at a tertiary care paediatric superspeciality hospital in Delhi- NCR region.

Material & method- This study was done in department of pediatric plastic surgery in tertiary care hospital in Delhi NCR region. Data was collected one day before, on the day of diwali and after the day year 2016 and 2017 retrospectively. Data was recorded in a pro forma of all children below 18 years with fire work related injury coming to our emergency.

Results- Table 1 showing decrease in fire work related injury, 2 in number in year 2017 compared to 20 in year 2016. Maximum patient were seen in group of 11- 15 years. Mostly patient have second degree burn type of injury as depicting in table 2. table 3 shows that most common injury was related to anar (fountain cracker). Most common site of injury was hand followed by face as shown in table 4.

Table 1: Distribution of patients according to age

	2016		2017		
Age in years	Male	Female	Male	Female	Total
0-5	0	0	0	0	0
6-10	6	0	1	0	7
11-15	10	4	1	0	15
16-18	0	0	0	0	0
Total	16	4	2	0	22

Table 2: Distribution of patient according to type of injury

	Male	Female	Total
Second degree burn	14	4	18 (81.81%)
laceration	3	0	3 (13.63%)
Soft tissue injury/loss	1	0	1 (4.54%)
Total	18	4	22

Table 3: Distribution of patient according to site of injury

	Male	Female	Total
Hand	12	3	15 (68.18%)
Face without eye area	1	1	2 (9.09%)
Face with eye area	5	0	5 (22.72%)

Table 4: Distribution of patients according to fire cracker used

	Male	Female	Total
Anar	10	1	11 (50%)
Ground spinner	1	2	3 (13.63%)
String bomb	3	0	3 (13.63%)
Other cracker	4	1	5 (22.72%)

Discussion- Our hospital is a pediatric superspeciality hospital located in delhi NCR region, catering population aged less than 18 years. This study describes impact of recent legislation on firework related injury in pediatric population during diwali. This study also describes the pattern of injury related to firework.

To prevent noise pollution in India, honorable Supreme Court in july 2005 put ban on use of fire cracker during 10 pm to 6 am. Tendon et al[1] in their study done during period of 9 years 2002 – 2012 concluded that, number of patients increased in spite of court orders. This time Supreme Court more radically put ban on sale of fire crackers during diwali period to prevent air pollution. In 2016 total number of patient presented to our emergency was 20 and only 2 in number in 2017. We can correlate this to recent court orders to some extent. Similarly Edwin et al[2] in their study found that there was no banger injury in new castle after the British government introduced fire work regulation 1996/97 banning banger firework.

Most commonly patients were in age group of 11-15 years. Our results were well comparable with other studies. In our study 81.81% were males and rests were female patients. Due to behavior differences and gender bias in India boys were more involved with lighting fire crackers. Hence boys more commonly had firework related injuries. Superficial to deep dermal burn injury was most common among our patients which were similar to other studies. We found most common site of injury was hand (68.18%) followed by face (31.81%) which was similar to study done by Bagri et al[3]. We also found that most firework injuries related to Anar (fountain) and our results were comparable with other studies[4].

Conclusion- We recommend such strict legislative laws of limiting sale of crackers, and age criteria for their use across the country ,because of which there was decrease in number of fire work related injuries. We are also in favour of laws to ban the production of selected fire crackers that cause high air, noise pollution and more common and

severe burn injuries to reduce the chances of fire work related injuries of our children.

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