

Peri-anaesthetic Oro-dental injuries: Awareness among General Anaesthetists

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ABSTRACT

Background: It is a known fact that there is a relatively high risk of dental trauma during endotracheal intubation. However, to our knowledge, there are very few studies available regarding the awareness of the anaesthetists in India about dental injuries. To evaluate the awareness among the anaesthetists about peri-anaesthetic oro-dental injuries, the risk factors associated and the measures taken by them to prevent it.

Materials and methods: Fifty anaesthetists in Hyderabad were selected by simple random sampling technique to participate in the study. A questionnaire was mailed to them to which they had to reply in a given time period. The data collected was analysed using statistical package Medcalc (Version 12.7.0.0)

Results: Injury to the lip was found to be the most common injury; upper left incisor was the most frequently injured tooth; most of the participants used padding of teeth as a measure to prevent dental trauma. However, many of them did not take any precautions. The management of such injuries was also found to be inadequate.

Conclusion: There is a definite need to increase awareness among the anaesthetists regarding dental injuries occurring during anaesthesia.

Keywords: Peri-anaesthetic, Oro-Dental injuries, General Anesthetists.

INTRODUCTION

Dental trauma is a frequent complication of oro-tracheal intubation which has been often attributed to poor dentition, emergent procedures, impetuous or aggressive laryngoscopy for restricted visual field or limited mouth opening, lack of correct prophylactic measures, incomplete anaesthesia and curarization during the induction period, lack of experience by the anaesthesiologist and lack of alternative intubation devices.¹ In 1936, Magill described the use of a piece of adhesive plaster to protect the teeth when using the laryngoscope in order to reduce the risk of damage to teeth during

intubation.² In 1943, Macintosh recommended the use of the curved blade, most widely used today, observing that the straight blade could cause trauma to the patient's upper teeth.³ Despite the advances in the intubation techniques, the dental injury still remains one of the common adverse events associated with general anaesthesia. The incidence of dental trauma associated with general anaesthesia ranges from 0.04%- 12.08%.⁴ The likelihood of peri-operative dental trauma increases with pre-existing dental pathology, presence of prosthesis and anaesthesia-related risk factors.

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Although, the anaesthesiologists often work around the oral cavity, they may not be having comprehensive knowledge about the teeth, surrounding tissues and intra-oral prosthesis and even about the management of dental injuries occurring during an operative procedure. Proper knowledge and awareness will help them to reduce the risk of peri-anaesthetic oro-dental injuries and also manage such injuries efficiently in case they occur. It will also help in protecting the anaesthesiologists from any medico-legal complications associated with such cases. It has been reported that the choice of the accurate proceeding and the use of protection aids could reduce the number of claims, insurance premiums and the costs of the litigation process, thus improving physician-patient relationship.^{5,6}

This study was undertaken to evaluate the knowledge of anaesthesiologists of Hyderabad city regarding peri-anaesthetic oro-dental injuries and the measures taken by them to prevent it. This study also aims at increasing the awareness about the subject among the anaesthetists in the city.

MATERIALS AND METHODS

The study sample included fifty anaesthetists working in private hospitals in Hyderabad. They were selected by using a simple random sampling method. Written consent was taken by each of them to participate in the study. A questionnaire consisting of ten questions was prepared to assess their experiences related to dental trauma, the probable risk factors and the preventive measures adopted by them to prevent such injuries during operative procedures. The questionnaires were mailed to them, and they were asked to reply within a stipulated time of five days. The data collected were statistically analysed using statistical package

Medcalc (Version 12.7.0.0). At the end of the study, a pamphlet containing some basic information regarding the prevention and management of peri-anaesthetic oro-dental injuries was distributed among them.

RESULTS

All the anaesthetists performed a pre-anaesthetic dental evaluation of their patients. 58% of them considered lip injury to be the most common oro-dental injury during general anaesthesia procedure followed by loosening of teeth (26%), avulsion of teeth (14%) and fracture of teeth (2%). They all agreed that laryngoscopy was the most common cause of injury. 50% of the participants felt that the upper left incisors were the most commonly affected teeth followed by upper right incisors (34%) and lower right incisors (16%)(Table 1). 92% of the participants referred their patients for pre-operative extraction of mobile teeth. The padding of teeth was used as a measure to prevent dental injuries by 68% of the participants while the others used mouth guards (16%) and mouth props (8%). However, 8% of the participants did not take any preventive measure. In the case of sub-luxation of the tooth during the operative procedure, 92% of them performed complete removal of the tooth by themselves while only 8% of them sought dental assistance. In case of an avulsed tooth during anaesthesia 76% handed it over to the relatives, 8% disposed of it and only 16% of them asked for dental assistance. For any other type of dental injuries during anaesthesia 54% advised no treatment, 2% gave only symptomatic treatment and 44% asked for dental assistance. 92% of the participants were interested in increasing their awareness regarding the oro-dental injuries associated with general anaesthesia (Table 2).

Table 1: Information gathered from the questionnaire.

	Information gathered from the questionnaire	Number	Percentage (%)
1	Anaesthetists who perform pre-anaesthetic dental evaluation	50	100
2	Most common oro-dental injury encountered during General Anaesthesia		
	1. Injury to lips	29	58
	2. Loosening of teeth	13	26
	3. Avulsion of teeth	7	14

	4. Fracture of teeth	1	2
3	Most common cause of oro-dental injury		
	1. Laryngoscopy	50	100
	2. Oropharyngeal airway insertion/removal	0	0
	3. Insertion/ removal of dental props/ mouth gags	0	0
	4. Suction devices	0	0
4	Most frequently injured teeth		
	1. Upper right incisors	17	34
	2. Upper left incisors	25	50
	3. Lower right incisors	8	16
	4. Lower left incisors	0	0

Table 2: Information gathered from the questionnaire.

	Information gathered from the questionnaire	Number	Percentage (%)
1	Anaesthetists referring patients for pre-operative extraction of mobile teeth	46	92
2	Preventive measures adopted by anaesthetists to prevent dental injuries		
	1. Padding of teeth	34	68
	2. Mouth guards	8	16
	3. Mouth props	4	8
	4. None	4	8
3	Measures taken for managing sub-luxated teeth during anaesthesia		
	1. Complete self-removal	46	92
	2. Seek dental assistance	4	8
4	Measures taken for managing avulsed tooth during anaesthesia		
	1. Ask for dental assistance	8	16
	2. Hand it over to relatives	38	76
	3. Dispose off	4	8
5	Measures taken to manage any other dental injuries during anaesthesia		
	1. Ask for dental assistance	22	44
	2. No treatment	27	54
	3. Other treatments (symptomatic)	1	2
6	Anaesthetists interested to increase their awareness regarding dental injuries associated with anaesthesia	46	92

DISCUSSION

Dental injury during endotracheal intubation has been often described as one of the complications due to the unintentional use of anterior teeth for support during laryngoscopy. Various risk factors for such injuries have been cited previously in the

literature like poor visibility in the hypopharynx, narrow thyromental distance, limited mouth opening, limited mobility of the mandible, and low mobility of the neck. Risk factors involving dental and oral health include caries, insufficient restorations, existing ceramic restorations and marginal periodontitis. Damage to the teeth can also

be caused by biting on the endotracheal tube by the patient during emergence from general anaesthesia.⁷ Children in the mixed dentition stage have been found to be more susceptible to maxillary teeth injuries due to the presence of immature roots, ectopic eruptions, increased overjet, dilacerated roots or pathology.⁸

In our study, lip injury was found to be the most common injury followed by loosening of teeth. Maxillary left incisors were the most commonly affected tooth. This finding was similar to those found in studies done by Lokhart *et al.* and Chen *et al.* According to Mourão J *et al.* injuries can also occur to the lower teeth.⁹⁻¹¹ In our study 16% of the participants agreed that lower right incisors were affected by trauma during anaesthesia.

Pre-operative evaluation of the patient for any difficulty in intubation, use of fiberscope or video laryngoscope, gauze rolls and folded tape, a strip of poly foam or adhesive plaster to be applied to the laryngoscope blade have been suggested by several authors.¹²

The prognosis of a traumatised immature permanent tooth depends greatly on time elapsed between the occurrence of injury and the treatment given. In case of such a trauma, all efforts should be made to minimize any further complications. In our study, it was seen that only 8% of the participants sought dental assistance in case of sub-luxation of the tooth and 16% in the case of avulsion of the tooth. The others did not seek for a dental opinion.

A thorough pre-operative evaluation of the dentition, appropriate preventive measures during airway instrumentation and careful use of mouth guards can reduce the incidence of dental injury.¹ In case dental trauma occurs during anaesthesia, a dentist should be consulted as soon as possible. Once the patient is awake, he should be explained about the damage. The patient's pre-operative dental conditions and all the efforts made to minimize any complications should be clearly documented in the patient's records.

The patients should be explained about the risk of damage to teeth that might occur during general anaesthesia. Proper knowledge and awareness on the part of the anaesthetists regarding such injuries will help them to avoid legal suits.

In our study, after the completion of the questionnaire, general facts related to the prevention and management of dental injuries was distributed among them in order to create more awareness.

CONCLUSION

There is a definite need to increase awareness among the anaesthetists regarding the risk factors, preventive measures and management of peri-anaesthetic oro-dental injuries. Proper knowledge will help reduce the incidence of such injuries, thereby, reducing patient morbidity and also reduce chances of litigation.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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