

The impact of timing surgery to adenoid tonsillectomy of children aged 3 through 15 years old in appearance of coughing and laryngospasm during awaking from general anesthesia

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Abstract

Introduction: More frequent and dangerous complications during waking from general anesthesia in children who underwent operative intervention adenotonsillectomy are coughing and laryngospasm. These complications are quite harmful and have a risk to life. The purpose of this research is to investigate the influence of the surgical duration of procedure in filing coughing and laryngospasm during waking from anesthesia. **Methodology:** It is a prospective study on the impact of operative duration in presenting two post-anesthetic respectively postoperative complications: coughing and laryngospasm, of children who underwent adenoid tonsillectomy operative intervention. The study was conducted at period of time from 1.03.2012 - 10.1.2013 and research included one hundred and twenty (120) children aged between 3 to 15 years old. They were classified according to the American Society of Anesthesiologist (ASA) in status I. Operations are performed under general anesthetic. After collecting the data, results were analyzed with the SPSS 20.0. **Results:** The children who presented cough, surgery lasted an average of 43.3 minutes (SD \pm 5.6 min). Children who haven't had coughing surgery lasted an average of 37.1 minutes (SD \pm 4.4 min). The children presented laryngospasm, surgery lasted an average of 43.5 minutes (SD \pm 5.5 min). Children who haven't had the laryngospasm surgery they lasted on average 37.4 minutes (SD \pm 4.6 min). **Conclusion:** From the results obtained in our research is observed that post-anesthetic complications were more frequent in cases where surgery lasted more. More time surgical procedure was the result of manipulation longest gorge space, multiple burns and irritation electrocoagulation greater.

Keywords: children, cough, laryngospasm, anesthesia, complications

INTRODUCTION

Tonsils are located on both sides of throat. They are important components of the immune system and help protect against infections, especially infections of the throat and upper respiratory tract. Tonsils are the first line of defense from microorganisms and other harmful substances to the air component (Vela et al., 1993; Probst et al., 2006; Limani, 2002; Kenna and Amin, 2009)

Tonsilloadenoidectomy or operating avoiding almond is the most frequent operation in pediatric otorhinolaryngology (ENT). This surgical intervention is done under general anesthesia (Gates, 1996; Bacic et al., 2003)

Among the most serious complications and frequent enough post-anesthetic is coughing and laryngospasm. These complications are expressed during retirement (arousal) from general anesthesia in children who underwent operative intervention adenoid tonsillectomy.

The cough is reflexive response to the presence of foreign particles in the respiratory tract. Through coughing

organism tends to release the presence of secrecy, dust mites and various irritants (Kim et al., 1998; Irwin, 2006) In adenoid tonsillectomy throat is irritated after surgery, burns with electrocoagulation, secrecy and blood added in varying amounts. All these elements increase the possibility of coughing during awakening from anesthesia.

Laryngospasm is reflexive closure of the plica vocalis caused by contraction of the muscles of the larynx interior, which provokes obstruction partial or complete respiratory tract (Jukic et al., 2005; Rasmussen et al., 1966). Entry into reflexive action laryngs closed under the action of nervus vagus and prevents the entry of the content. The most frequent cause of laryngospasm, especially in children, is erosion of glottis, irritation (burning, logging), secret or blood after surgery in the upper respiratory tract like tonsillectomy (Ohri et al., 2011; Jukic et al., 2005; Alalami et al., 2008). Laryngospasm can be from mild forms of stridor inspiratory until the closure of upper respiratory.

The purpose of this research is to investigate the influence of surgical duration of procedure in filing coughing and laryngospasm during waking from anesthesia. It undertook a prospective study on the impact of operative duration in presenting two post-anesthetic respectively postoperative complications: coughing and laryngospasm, in children who underwent operative intervention, adenoid tonsillectomy. The study was conducted in the period 1.03.2012 - 01.10.2013 in the Clinic of Anesthesiology and Intensive Treatment, Unit for Otorhinolaryngology Clinic of the University Clinical Centre of Kosovo (UCCK).

METHODOLOGY

After approval of the research study by the Professional Ethics Committee at the University Clinical Center, the parents of all children were informed and their consent were received in writing. The research included one hundred and twenty (120) children aged between three (3) to fifteen (15) years, classified according to the American Society of Anesthesiologist ASA status/classes I. Operations were carried out under general anesthesia. On the basis of duration of surgery, children were divided into four groups. To all these groups are observed and recorded the quality of awakening and eventual appearance of coughing and laryngospasm.

Induction is done with: Atropine, Propofol, Fentanyl and Esmeron. Intubimi is made of armored tubus size dependent on age. Anesthesia was maintained with inhalational gas Sevofluran and mixing Nitrogen and Oxygen (O₂ / N₂) at 50:50 reports.

The operating according to the duration of surgery were divided into four groups:

1. Duration of operation from 30 to 35 min.
2. Duration of operation from 40 to 45 min.
3. Duration of operation from 50 to 55 min.
4. Duration operation over > 60 min.

After collecting the data, results were analyzed with the SPSS 20.0. P value and standard deviation, Average, Mann-Whitney is used to find the significance.

RESULTS

The children who presented cough, surgery lasted an average of 43.3 minutes (SD \pm 5.6 min), range 35 to 55 minutes. In children who haven't had coughing surgery lasted an average of 37.1 minutes (SD \pm 4.4 min), range 30 to 45 minutes. With the Mann-Whitney significance test have earned the distinction with statistically significant between the duration of the operation under the appearance of coughing (P <0.0001) (Table 1)

Table 1. The average duration of the operation by the presence of coughing

Duration of surgery (Min)	Cough	
	Yes	No
N	23	97
Average	43.3	37.1
SD	5.6	4.4
Min	35	30
Max	55	45
Mann-Whitney test	P<0.0001	

The children presented laryngospasm, surgery lasted an average of 43.5 minutes (SD \pm 5.5 min), range 35 to 55 minutes. Children who have not had the laryngospasm surgery lasted on average 37.4 minutes (SD \pm 4.6 min), range 30 to 50 minutes. With the Mann-Whitney significance test have earned the distinction with statistically significant between the duration of the operation as presented laryngospasm (P <0.001) (Table 2).

Table 2. The average duration of the operation by the presence of laryngospasm

Duration of surgery (Min)	Laryngospasm	
	Yes	No
N	17	103
Average	43.5	37.4
SD	5.5	4.6
Min	35	30
Max	55	50
Mann-Whitney test	P=0.0001	

DISCUSSION

Considering that the surgical field is in the airways tract, it also decided to provide ventilation tube, the postanesthetic complications are inevitable. Very severe complications with threatening risk of life are cough and laryngospasm. Coughing as a sigle does not present the risk, if not accompanied by airways spasm. Our research given us evidence that with increasing duration time of the operation increases the possibility of presenting complications. Tonsillectomy if it is done harshly, is more possible the appearance of postanesthetics complications.

CONCLUSION

From the results obtained in our research is observed that postanesthetics complications were more frequent in cases where surgery lasted more. More time surgical procedure was the result of manipulation longest gorge space, multiple burns and irritation elektrokoagulant greater. In addition, increases the possibility of postanestetik complications.

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