بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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MONA MAGHRABY

Bleeding Tendency in People who Anesthetized with Sevoflurane VS those Anesthetized with Isoflurane

Thesis

Submitted for Partial Fulfillment of
Master Degree in **Otorhinolaryngology**

By

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Mohammed Elsayed Salem Elsayed

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List of Abbreviations

Abb.	Full term
AEA	*Arachidonoylethanolamine*
AID	*Activation-induced cytidine deaminase*
ASO	*Antistreptolysin O*
BlimP-1	*B lymphocyte-induced maturation protein 1*
CSR	*Class-switch recombination*
DCs	*Dendritic cells*
FDCs	*Follicular dendritic cells*
GABHS	*Group A β-hemolytic streptococcus*
GCs	*Germinal centers*
HEVs	*High endothelial venules*
HLA	*Human leukocyte antigen*
Ig	*Immunoglobulin*
Ig V	*Ig variable*
MALT	*Mucosa-associated lymphoid tissue*
NALT	*Nasopharynx-associated lymphoid tissue*
NMDA	*N-methyl-D-aspartate receptor*
NMR	*Nuclear Magnetic Resonance*
NSAIDs	*Nonsteroidal anti-inflammatory drugs*
PANDAS	*Pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections*
PCs	*Plasma cells*
PNAd	*Peripheral lymph node addressin*
Tfh	*T follicular helper cells*
Th	*Helper T*

Abstract

Background & Purpose: The effects of desflurane and sevoflurane, two commonly used inhalation anesthetics for the maintenance of general anesthesia, on peri- and postoperative bleeding is a focus of interest. This study conductd to evaluating that; Sevoflurane can cause bleeding tendencies more than Isoflurane anesthesia or not?

Study design: Prospective, randomized comparative study.

Setting: Ain shams university hospitals.

Subjects: We included 40 tonsillectomy patients (age from 2 – 12 years old), and classified them according to the anesthetic drug used into 2 independent groups: Isoflurane group (20 patients) and Sevoflurane group (20 patients).

Methods: All patients were subjected to full history taking, oral cavity examination, anterior rhinoscopy nasal examination, basic laboratory studies for bleeding tendencies (e.g. platelets and INR), adenoidal-tonsillectomy operational data (including operative time calculation), bleeding outcomes (blood loss and packs of blood transfusion) will be recorded, and half of the cases will be anesthetized with sevoflurane and another half with isoflurane.

Results: In the studied population, the mean age of all patients was (7.1 ± 2.7) years, with (57.5%) of patients were males; while (42.5%) were females. Regarding bleeding outcome data; the average blood loss of all patients was (15.5 ± 3.7) cc, and the average packs used were (4.2 ± 1.1). We found a significant decrease in operative time in the Isoflurane group; compared to the Sevoflurane group ($p = 0.0017$). Regarding Bleeding outcome data; we found, a significant decrease in blood loss, in the Isoflurane group; compared to the Sevoflurane group ($p = 0.00014$), and a significant decrease in the number of packs used, in Isoflurane group; compared to Sevoflurane group ($p = 0.0018$).

Conclusion: To conclude, anesthesia with isoflurane can lead to a lower amount of intraoperative bleeding compared with sevoflurane. Therefore, isoflurane may be preferred as an inhalational agent for the maintenance of general anesthesia during tonsillectomy and adenoidectomy operations.

Keywords: Bleeding Tendency, Anaesthesia, Sevoflurane, Isoflurane.

INTRODUCTION

Until today, tonsillectomy techniques have been blamed for the bleeding and pain after tonsillectomy operations and, postoperative and intra-operative complications have been attributed to the technique used. Comparisons were made between the techniques and the studies mostly emphasized the identification of the better technique ***(Ashbach et al., 2007).***

The effects of isoflurane and sevoflurane, two commonly used inhalation anesthetics for the maintenance of general anesthesia, on peri- and postoperative bleeding is a focus of interest (***(Scheller, 1992; Loscar and Conzen, 2004).***

In clinical and experimental studies performed in animals and human beings, isoflurane was compared with the other volatile anesthetics in terms of cardiovascular effects, and it was found that isoflurane dose-dependently reduced the systemic vascular resistance. Reduction in cardiac output may also be seen with higher doses ***(Scheller, 1992; Loscar and Conzen, 2004).***

Platelet aggregation induced by ADP, epinephrine, arachidonic acid, Prostaglandin G2 and Thromboxane A2 receptor agonists was shown to be suppressed by sevoflurane ***(Hirakata et al., 1995)***. This inhibition is caused by the suppression of thromboxane A2 and the suppression of cyclooxygenase. The antiaggregant effects of sevoflurane are

reversible ***(Hirakata et al., 1996)***. However, desflurane does not have an effect on the platelet response induced by ADP activation ***(Fröhlich et al., 1998).***