CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.1473763

Available online at: http://www.iajps.com Research Article

ANALYSIS OF LEVEL OF ANTIOXIDANTS IN HEALTH ASPECTS OF ORAL DISEASES TREATMENT BY USING GENERAL ANESTHESIA

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Abstract:
Introduction: *There are positive as well as negative impacts of general anesthesia on one's health, negative aspect is that the general anesthesia is not recommended in most of the cases in which the patient have high blood pressure or a disorder that may accelerate on giving anesthesia.* ***Objectives:*** *The main objective of our study is to analyze the health aspects of different oral diseases treatment by using general anesthesia in local population of Pakistan.* ***Methodology:*** *This study was conducted according to the rules and regulations of Nishtar medical university, Multan during Jan 2018 to august 2018. For this purpose we select the 100 patients who was come at the hospital for oral treatment. They want general anesthesia because they do not some time bear pain.After that we take 5cc blood with the permission of patients for the purpose of analysis of level of antioxidants.* ***Results:*** *Mean values of investigated parameters (SOD and catalytic activities, lipid peroxidation and glutathione levels) upon treatment are summarized. Our data show that activity of SOD and levels of MDA and GSH are elevated in samples collected from patients subjected to drug administration. Interestingly, activity of catalases decreased by the value of 0.43 ± 0.39 U/ml (after 5 minutes of anesthesia).* ***Conclusion:*** *It is concluded that people who used general anesthesia as a pain killer suffer more from high level of antioxidants.*

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Please cite this article in press Muhammad Wamiq et al., ***Analysis of Level of Antioxidants in Health Aspects of Oral Diseases Treatment by Using General Anesthesia.,*** *Indo Am. J. P. Sci, 2018; 05(10).*

INTRODUCTION:

The basic purpose of giving anesthesia is to make a person or child senseless so that they can endure the pain during oral health maintenance, whether it is by means of surgery or removal of dental carries. As far as, mouth is concern, it is the most sensitive part of human body. It means it have plenty of veins with high blood supply because of enormous amount of energy utilization during a day in terms of eating, speaking and swallowing the food. When children or differently able persons are intended for a dental treatment, general anesthesia is given in a fixed proportion to the oral part so that they may not sense any pain and feel less anxiety [1].

There are positive as well as negative impacts of general anesthesia on one's health, negative aspect is that the general anesthesia is not recommended in most of the cases in which the patient have high blood pressure or a disorder that may accelerate on giving anesthesia. There is always the risk of complication such as laryngospasm which results due to suppression of central nervous system and defensive reflex actions. Contrary to this, advantage of anesthesia is that it has obligative success rate and it helps in cure when general health of oral cavity is concern [2].

People with negative experience of dental care or treatment often become very anxious of cure and uncooperative. General anesthesia is considered as best factor due to its role in minimization of psychological stress within or without environmental factors. In most cases, children have caries which can be cured in a sequence of restorative procedures. Studies showed that the number of children treated by using general anesthesia depends directly on the number of children in a population with severe dental decay or disorders [3]. Moreover, literature have also reported that use of general anesthesia also effects positively with less pain experience, improved abilities of eating and sleeping, and social impact. In short, due to use of general anesthesia, the portion of brain with reduced load of work and blood results in activation of hypothalamus with improved sleeping and social cycles [4].

Background of the study

Those people that undergo treatment of oral diseases with the induction of general anesthesia either become fearless or enlarged fear due to experience of their treatment. Therefore, there has always been a survey to get the opinions of people have experienced general anesthesia in their treatment. There is always increasing the demand of using general anesthesia in oral as well as other treatment. As, some diseases may result in ear or nose as well, and there is a link between ear, nose and throat, therefore, use of general anesthesia may result in temporary blockage of ear or may result in dizziness or numbness of any of these part during treatment and after prognosis. Therefore, the survey is done to check the public opinion on use of anesthesia as well as its impact on their health after use [5].

Objectives

The main objective of our study is to analyze the health aspects of different oral diseases treatment by using general anesthesia in local population of Pakistan.

METHODOLOGY:

This study was conducted according to the rules and regulations of Nishtar medical university, Multan during Jan 2018 to august 2018. For this purpose we select the 100 patients who was come at the hospital for oral treatment. They want general anesthesia because they do not some time bear pain. After that we take 5cc blood with the permission of patients for the purpose of analysis of level of antioxidants.

Blood sample collection

Blood samples (5 ml) were taken from vein before anesthesia (0 min), and 5 min, 30 min and 60 min after anesthesia.

Processing of blood sample

Blood was centrifuged at 4000 rpm for 10 minutes and serum was separated. Blood samples were collected into EDTA tubes. Subsequently, indomethacin and butylated hydroxytoluene were added into the plasma samples. Blood samples were stored at -80°C**.**

Statistical Analysis

Statistical analyses (Anova Test and Post Hoc) were performed using the SPSS software program (17.0). All results were expressed as the mean ± standard deviation (SD). P value below 0.05 was considered to be statistically significant.

RESULTS:

Mean values of investigated parameters (SOD and catalatic activities, lipid peroxidation and glutathione levels) upon treatment are summarized in Table 1. Our data show that activity of SOD and levels of MDA and GSH are elevated in samples collected from patients subjected to drug administration. Interestingly, activity of catalases decreased by the value of 0.43 ± 0.39 U/ml (after 5 minutes of anesthesia). The levels of MDA slightly increased at 5 min time point after anesthesia.

Table 01: Analysis of Total antioxidants in dental treatment after using general anesthesia

No.of Observation	Analysis of blood	Normal µg/mL	Before treatment µg/mL	After treatment(5min) µg/mL	After treatment(15min) µg/mL	After treatment(60min) µg/mL
01	**SOD**	0.32±0.00	0.33±0.23	0.39±0.00	0.45±0.19	0.51±0.21
02	**CAT**	4.16 ±0.00	0.90±0.00	0.43±0.39	0.30±0.24	0.19±0.18
03	**GSH**	1.89 ±0.00	2.48±1.29	3.23±0.03	4.92±0.57	5.64±0.55
04	**MDA**	2.35±0.00	4.26±0.00	4.95±0.97	5.13±1.06	6.58±0.00

DISCUSSION:

Local anesthetics interrupt neural conduction by inhibiting the influx of sodium ions through channels or ionophores within neuronal membranes. Normally these channels exist in a resting state, during which sodium ions are denied entry. When the neuron is stimulated, the channel assumes an activated or open state, in which sodium ions diffuse into the cell, initiating depolarization [6]. Following this sudden change in membrane voltage, the sodium channel assumes an inactivated state, during which further influx is denied while active transport mechanisms return sodium ions to the exterior. Following this repolarization, the channel assumes its normal resting state. An appreciation of these sodium channel states helps to explain the preferential sensitivity of local anesthetics for various classes of neuronal fibers. Therefore, neural fibers having more rapid firing rates are most susceptible to local anesthetic action [7]. Also, smaller fibers are generally more susceptible, because a given volume of local anesthetic solution can more readily block the requisite number of sodium channels for impulse transmission to be entirely interrupted. For these reasons the tiny, rapid-firing autonomic fibers are most sensitive, followed by sensory fibers and finally somatic motor fibers [8]. The anesthesiologist blocking mixed spinal nerves is acutely aware of these differential sensitivities. As patients recover from spinal anesthesia they first regain voluntary motor function, then sensation returns, and finally they can micturate (autonomic control). The dentist is generally spared this consideration because the trigeminal nerve branches anesthetized for dental procedures are comprised only of small, rapid-firing sensory fibers. However, the many classes of sensory fibers also vary in their diameters and firing rates. For example, pain fibers are more sensitive than those carrying pressure and proprioception. A patient may remain disturbed by a sense of pressure despite complete anesthesia of pain fibers [9,10].

Most of the studies in pediatric patients stress on the utilization of general anesthesia for the treatment of anxious, fearful, no cooperative children along with children with special health care needs. Studies also advocate that such procedures should be carried out in a hospital-based setup rather than a private clinic [11]. Also, the patient's age, grade of its uncooperative behavior along with complete medical history decides the need for general anesthesia. Therefore, improving the behavior of the pediatric patient toward the dental treatment can minimize the need for general anesthesia. Hence, we evaluated the pediatric patients with and without mental retardation, who underwent dental treatment under general anesthesia [12].

CONCLUSION:

It is concluded that people who used general anesthesia as a pain killer suffer more from high level of antioxidants.

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