

## AWARENESS ABOUT PERFORMING ORAL SURGICAL TREATMENT FOR AN ASTHMATIC PATIENT AMONG UNDERGRADUATE DENTAL STUDENTS

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### ABSTRACT :

**INTRODUCTION:** A condition in which a person's airways become inflamed, narrow and swollen and produces extra mucus, which makes it difficult to breathe. Asthma can be minor or it can interfere with daily activity. In some cases, it may lead to a life-threatening attack. Asthma may cause difficulties in breathing, chest pain, cough and wheezing.

**AIM:** The aim of the present study is to assess the awareness level about performing oral surgical treatment for asthmatic patients among undergraduate dental students.

**MATERIALS AND METHOD:** The study was a cross-sectional survey conducted among the students of a Private Dental College and Hospital. A total of 100 participants were enrolled in the study and a questionnaire-based online survey was conducted among the individuals. The survey was created on the Google forms platform and then circulated among the individuals via WhatsApp and Gmail. Data was recorded in Microsoft Excel 2016 and later exported to SPSS version 22.0 and subjected to statistical analysis. Descriptive statistics were done.

**RESULTS :** About 17% of female and 16% of male participants are unaware of drugs used by asthmatic patients and about 43% of female and 24% of male participants are not aware of the drugs used by asthmatic patients. About more than 50% of the participants are aware of drugs prescribed for post extraction for an asthmatic patient. Based on the result obtained dental students are moderately aware about the performing oral surgical treatment.

**CONCLUSION :** From the above results and discussion, we can come to a conclusion that most of the students are kind of aware of the management asthmatic patients during dental surgery. But a thorough knowledge about them is necessary to make the right choice when required.

**KEYWORDS :** Asthma patient, oral surgical treatment, dental students, Innovative technique.



**INTRODUCTION :**

Asthma exacerbations can be triggered for patients treated under general anesthesia through several mechanisms. These include alteration of diaphragmatic function, impaired ability to cough, and decreased mucociliary function(1). Placement of the endo- tracheal tube itself is a patent airway irritant that may trigger bronchoconstriction in asthmatic patients (2). The above changes in lung function can lead to atelectasis, mucus plug- ging, and wheezing postoperatively(3). Older patients are at higher risk for periop- erative respiratory complications such as aspiration, bron- chospasm, and prolonged mechanical ventilation. Therefore, a coordinated “team” approach is perfect for asth- matic patients who require surgery. (4)

Preoperatively, most of the patients need to be checked by a physician for medical fitness before starting the procedure. Currently, most internal medicine guidelines focus on a cardiac evaluation(5). A few include pulmonary function testing or objective assessment of respira- tory symptoms as part of a routine preoperative history and physical(6). Many studies have suggested that asthmatics be assessed by their physician approximately one week before surgery to optimize treatment plans. Because preoperative treatment with oral steroids isn't indicated altogether asthmat- ics, a specialized history and physical and sometimes spirometry is important before surgery(7).

The preoperative theory goals include reverse bronchospasm and inflam- mation so as to reduce the likelihood of intraoperative or postoperative asthma flares(8). Corticosteroids such as prednisone have been shown to improve lung func- tion within hours of administration(9). General guide- lines for preoperative pharmacotherapy (10). If the patient has no symptoms before surgery, doesn't re- quire any asthma medications, and has not had any flare in asthma symptoms over the past year, then preoperative treat- ment with oral or inhaled steroids is not necessary(11).

**MATERIALS AND METHODS:**

**Study setting:** The study was a cross-sectional survey conducted among the students of a Private Dental College and Hospital. The questionnaire was assessed by experts in the field for validity and reliability. Study object: A total of 100 participants were enrolled in the study. The sampling bias is minimized by including all available data with no sorting process.

**Sampling method:**

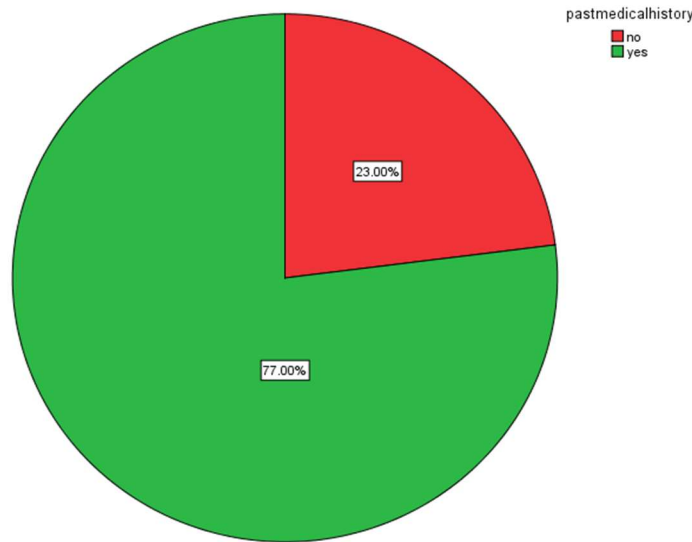
A questionnaire-based online survey was conducted among 100 individuals. The survey was created on the Google forms platform. A total of 15 valid questions were asked regarding the Awareness level on management of an asthmatic patient during dental surgery. The sampling method used is a random sampling method.

**Data Collection and statistical analysis :**

Data was recorded in Microsoft Excel 2016 and later exported to SPSS version 22.0 and subjected to statistical analysis. Descriptive statistics was done and the association graphs were plotted. Chi-square test shows p-value =0 < 0.05 which is statistically significant.

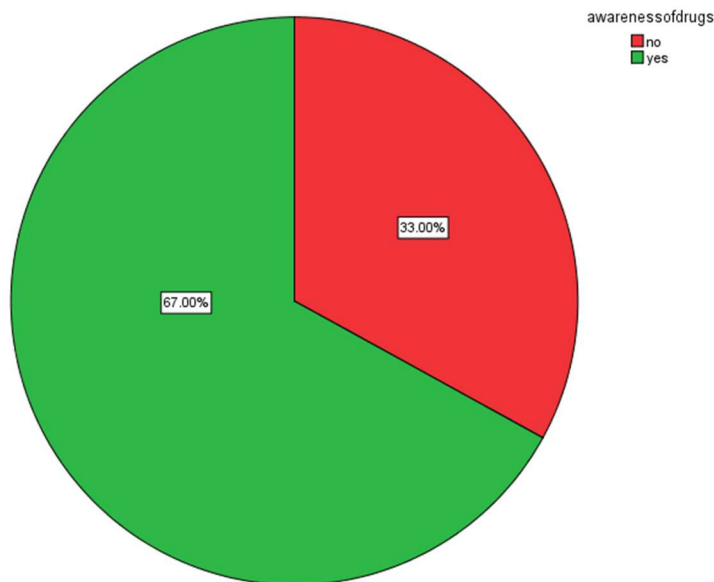
**RESULTS:**

**Are you aware of asking patients about their past medical history before starting dental treatment?**



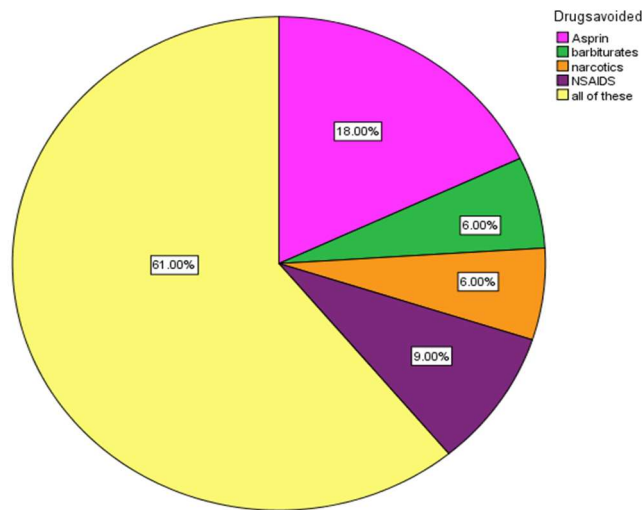
**Figure 1:** The above pie chart shows the awareness of patients about their past medical history before starting a medical treatment. Red colour denotes no (23.00%) and green colour denotes yes (77.00%). Majority of the patients are aware of their past medical history before starting a medical treatment (77.00%) .

**Are you aware of asking patients about the drugs consumed by them other than you prescribed?**



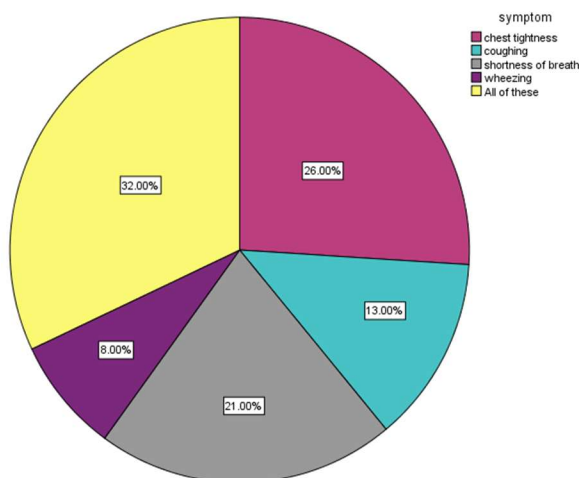
**Figure 2:** The above pie chart shows the awareness of drugs consumed by the patient visiting a dental clinic for oral surgery. Red colour denotes no(33.00%) and green colour denotes yes(67.00%). Majority of the patients are aware of drugs consumed for oral surgery (67.00%).

**What type of drugs are avoided for an asthmatic patient?**



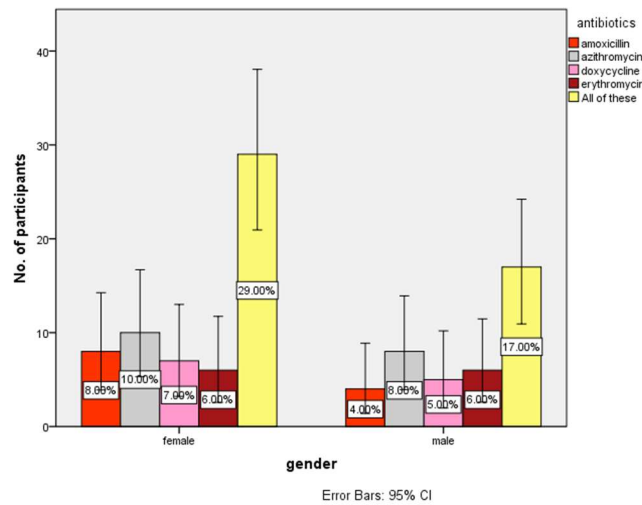
**Figure 3:** The above pie chart shows the awareness on drugs to be avoided for the patient visiting dental clinic for oral surgery. Pink colour denotes the asprin(18.00%), green colour denotes the barbiturates(6.00%), orange denotes the narcotics(6.00%), purple colour denotes the NSAIDS(9.00%), yellow colour denotes the all of the above(61.00%). Majority of the patients are aware about the drugs to be avoided for oral surgery (61.00%).

**What are the symptoms shown by asthmatic patients during dental procedure?**



**Figure 4:** The above pie chart shows the awareness on symptoms shown by the asthmatic patients during dental treatment. pink colour denotes the chest tightness(26.00%), green colour denotes the coughing(13.00%), brown

colour denotes the shortness of breathing(21.00%) ,purple color denotes the wheezing(8.00%) and yellow colour denotes the all of the above(32.00%) .Majority of the patient aware about the symptoms shown by the asthametic patient during dental treatment (32.00%).



**Figure 5:** Bar graph depicting the association of awareness on antibiotics prescribed for the patient visiting dental clinic for oral surgery with gender. P value is 0.36 > 0.05, which is not significant implying awareness about antibiotics is not based on gender.

**DISCUSSION:**

Considering the health risks associated with dental surgical procedure, special concern should be given to the past medical history of the patients visiting dental clinics for oral surgery. From figure 1, it is observed that 10% of female participants and 13% of male participants convey that they are not aware of addressing the past medical before planning for the treatment(12). About 50% of female and 27% of male participants are aware that past medical history plays a vital role in treating the patient visiting a dental clinic for any surgical treatment(13). From figure 2, it is evident that considering the awareness level on drug used by the asthmatic patients visiting dental clinic, 17% of female and 16% of male participants are unaware of drugs used by asthmatic patients and about 43% of female and 24% of male participants are not aware of the drugs used by asthmatic patients(14). Epinephrine, the mainstay of therapy for acute asthmatic crisis, has both alpha and beta sympathomimetic actions. Epinephrine’s beta effects, however, far outweigh its alpha effects on bronchial smooth muscle and bronchodilation results. From figure 3, it is observed that considering the awareness level on drugs which is to avoided to the asthmatic patient post treatment by dental practitioners, 9% of female and 9% of male participants says its aspirin, 2% of female and 4% of male participants choice is bartibituates, 5% of female and 1% of male participants think that narcotics should be avoided, 7% of female and 2% of male participants convey that NSAIDs should be avoided and about 37% of female and 24% of male participants say that all of the above mentioned drugs should be avoided to the pasthmatic patients after oral surgical procedure has completed.(14,15). For management of acute asthmatic attacks, the usual dosage of epinephrine in adults is 0.2 to 0.5 ml of a 1:1,000 solution, administered subcutaneously and repeated at 20-minute intervals as needed.

In children, the dosage is 0.01 mg/kg, subcutaneously, repeated as necessary every 20 minutes. Tolerance may develop after repeated use, and care must be taken to avoid intravenous injection that may result in life-threatening arrhythmias or cerebral hemorrhage caused by sudden hypertension. From figure 4, considering the awareness on symptoms shown by the asthmatic patients during treatment, 18% of female and 8% of male participants noticed chest tightness, 2% of female and 11% of male participants noticed coughing by the patients, about 17% of female and 4% of male participants say its shortness of breath and 4% of male and female participants convey that they notices wheezing as the main symptom shown by asthmatic patient(16). About 18% of female and 13% of male participants have noticed all the above mentioned symptoms in the patients suffering from asthmatic attack during dental surgical procedure. Among other commonly used non selective sympathomimetics, ephedrine, a combined alpha- and beta sym pathom im etic, produces less noticeable bronchial relaxation than epinephrine and isoproterenol do. It is, however, longer acting and can be administered orally. Its chief use is in oral maintenance therapy rather than immediate management of the acute asthmatic attack.From figure 5, considering the drug of choice for the asthmatic patient post dental treatment, amoxicillin is the drug of choice for antibiotic by 29% of female and 17% of male participants, azithromycin as the drug of choice by 8% of female and 4% of male participants(17).

Doxycycline is the drug of choice for the treatment by 10% of female and 8% of male participants. Erythromycin was the drug of choice by 6% of female and male participants. About 29% of female and 17% of male participants convey that all the above drugs can be prescribed for asthmatic patients reporting for dental surgery. The successful intraoperative management of the asthmatic patient undergoing dental surgery must include avoiding any stimulation of the hyperresponsive and sensitive upper airway during the administration of anesthesia and surgery.<sup>12</sup> Although regional anesthesia provides an alternative to general inhalation anesthesia, extreme caution must be exercised to prevent oral antiseptic solutions or dental particulates from stimulating pharyngeal reflexes and precipitating severe bronchospasm. Children and apprehensive adults with histories of emotion-induced bronchospasm are not good candidates for major dental surgery under regional anesthesia.

A careful history and physical examination are essential in determining the clinical type and severity of asthma. A radiograph of the chest and pulmonary function studies provide additional insight into coexisting lung diseases and ventilatory capabilities. Careful emotional preparation and reassurance are also important in reducing preoperative apprehension in asthmatic patients. Heavy narcotic premedication is not recommended because of cardiorespiratory depression, histamine release, and central nervous system depression with hypoventilation.<sup>12,13</sup> Premedication with barbiturates and certain tranquilizers, however, may be helpful for the anxious asthmatic patient.<sup>12</sup> Antihistamines, such as diphenhydramine hydrochloride (Benadryl) may also be useful for premedication, particularly in combination with such minor tranquilizers as h y d r o x y z i n e , diazepam , and lorazepam.Our team has extensive knowledge and research experience that has translate into high quality publications(18),(19),(20),(21),(22–31) (32),(33–35).(36,37)

## CONCLUSION:

About 77% of the participants are aware that past medical history plays an important role in treating asthmatic patients. About 67% of the participants were aware of drugs consumed by the asthmatic patients reporting to the

dental clinic for surgical management. Participants have moderate awareness on which drug has to be avoided and the drugs which have to be prescribed for the asthmatic patients to post treatment and further management.

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The authors declare that there were no conflicts of interest in the present study.

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