

## RETROSPECTIVE STUDY OF ASTHMATIC PATIENTS REPORTING FOR DENTAL EXTRACTION.

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### ABSTRACT:

**Introduction:** Asthma is the most common respiratory condition which causes airway obstruction and inflammation. Knowledge and understanding the etiology and pathogenesis of asthma helps in delivering the best effective dental treatments and avoid complications. Precautionary measures for avoiding intraoperative problems while optimizing oral care is needed to avoid asthmatic attack during treatment.

**Aim:** Aim of the study is to assess the prevalence of asthmatic patients reporting for dental extractions.

**Materials and Methods:** Data was collected from Saveetha Dental College and the data was transferred to excel sheet. Statistical analysis was done using spss software .

**Results:** From the data collected it was observed that females reported with asthma for extraction are more in number than the males reported for extraction.

**Conclusion:** From the study, it is concluded that asthma is found to be one of the most common medical emergencies occurring in dental set up and high chance of developing post extraction complications.

**Keywords :**Extraction, asthma, respiratory failure , steroids.

**Running title:** Retrospective study of asthmatic patients reporting for dental extraction.

### INTRODUCTION:

Asthma is the most common chronic, non transmittable respiratory disease affecting people of all age groups irrespective of racial backgrounds. Asthma is more commonly developed in children and compared to children, adults have higher mortality rates. Gender differences in asthma show a higher number of women affected by this condition (1). Conversely, more boys develop asthma in childhood. Recognizing the symptoms of asthma is an important starting point for its diagnosis(2).The classical symptoms of asthma are not that specific and patients often experience reversible episodes of shortness of breath, coughing, wheezing, and chest tightness. Early morning or late night are times in which symptoms are more likely to occur. As a result, patients may tend to develop limitations in physical activity and nocturnal awakening (3).These symptoms are often recurrent and worsen upon exposure to triggers. Symptoms may last from minutes to days, but often improve spontaneously or via using bronchodilator medications .In rare events, severe attacks may be refractory to regular therapy and patients will encounter episodes of severe dyspnea, cyanosis, drowsiness, and confusion, which requires immediate medical attention(4).



Asthmatic patients consuming daily doses of B2-agonists and corticosteroid inhalers which have a high risk of developing oral complications. Patients on long term steroids experience xerostomia due to decreased salivary flow rate from inhaler use, and developed mouth breathing habits from impaired nasal respiratory function. Decreased salivary flow enables bacteria to develop and it starts to deteriorate tooth structure and lead to the development of dental caries and erosion(5). Xerostomia can also make oral mucosal tissues more susceptible to trauma which can lead to the development of oral ulcerations and burning sensation that can be extremely uncomfortable for the patients. The correlation between asthma and periodontal disease has been widely discussed in the various literature. One such study confirmed a similar increase in certain biomarkers, namely immunoglobulin Type E (IgE) and histamines, as an immunological reaction is present in both periodontal disease and asthma(6). Studies shows that long term corticosteroid use (systemic or inhaled) is linked to a generalized reduction in bone mineral density, which can manifest in the periodontal region and lead to periodontal bone loss(7). Our team has extensive knowledge and research experience that has translate into high quality publications.(8),(9),(10),(11),(12–21)(22),(23–25)(26,27)

Extraction is the removal of a tooth due to a variety of reasons which includes the usage of local anesthesia .Dental management of asthmatic patients is primarily aimed at prevention of an acute asthma attack. Knowing that stress is also a precipitating factor in asthma attacks, adherence to stress-reduction protocols is again essential(28). Previous studies on Local anaesthesia suggest that sodium metabisulfite, which is used as an antioxidant agent in dental local anesthetic solutions containing may induce allergic, or extrinsic, asthma attacks(29). All the asthmatic patients don't tend to create asthmatic attacks after the usage of LA. It affects only those who are under long term steroids. Hence it is advisable to avoid local anesthetic with vasoconstrictors in corticosteroid-dependent asthma patients on account of a higher risk of sulfite allergy and the possibility that an accidental intravascular injection might cause a severe and immediate asthmatic reaction in the sensitive patients (30).

Aim of the study is to assess the prevalence of asthmatic patients reporting for dental extractions.

## **MATERIALS AND METHODS:**

The retrospective study was in a hospital setting which was conducted in a private dental college predominantly. Ethical approval was obtained from the Institutional review board prior to the start of study.

### **Study design:**

The study was designed to include the South Indian population of age between 3-30 years of age with the medical history of asthma. The patients who did not have a medical history of asthma criteria were excluded.

### **Data collection And Tabulation:**

Data collection was done using the patient database with the timeframe work of 1st March 2020 to 31st the February 2021. About 120 OPGs were reviewed and those fitting under the inclusion criteria were included. Cross verification of data was done by a reviewer. The collected data was tabulated based on the following parameters:

\*Patients Gender

- \*Patients reporting with asthma and asthma with other complications
- \*Association between Gender and Asthma, asthma with other complications.

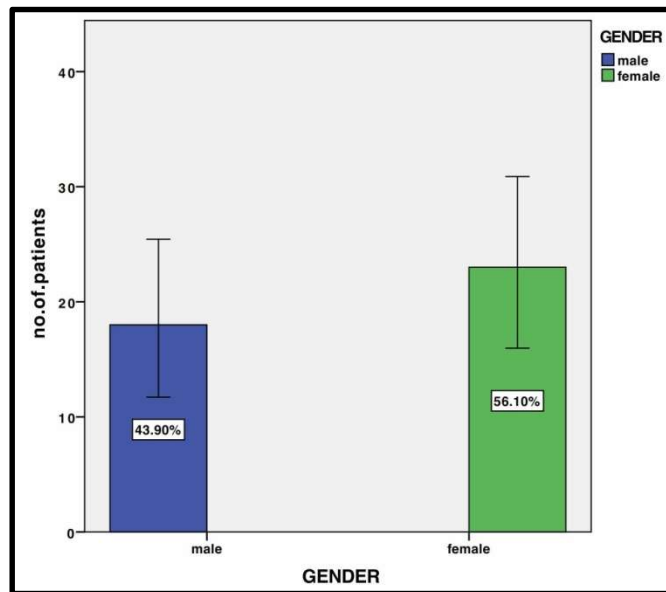
**Statistical Analysis:**

The variables were coded and the data was imported to SPSS. Using SPSS version 20.0 categorical variables were expressed in terms of numbers and bar graphs were plotted. The statistical analysis of the associates were tested using the Chi Square test.

**RESULTS:**

The collected data were analysed using spss software and were used for the discussion. A total of 42 out patients were reported with the medical history of Asthma and asthma with other complications for dental extraction. Fig 1 depicts that male and female reported for extraction with a medical history of asthma among which 56.10% were female and 43.90% were male. It is found that females are comparatively higher than males with the medical history of asthma. Patients reported for extraction with only medical history of asthma is 71.43% and asthma with other complications is found to be 28.57% (Fig 2).Most common complications associated with asthma is respiratory failure, poor sleep, reduced lung function, poor mental health, physically inactive etc. On evaluating the association between gender and the patient reported to extraction with asthma and asthma with other complications, female reported with medical history of asthma is 39.02% and asthma with other complications is 17.07% and among male, history of asthma is 34.15% and asthma with other complications is 9.76% ( fig 3).

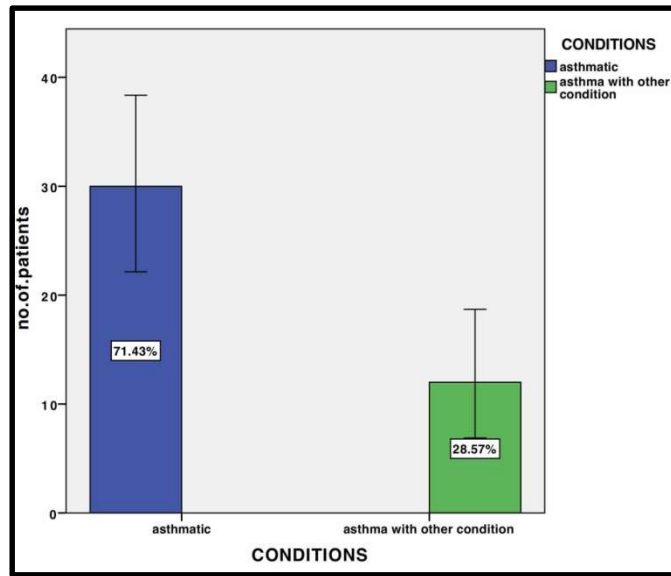
**FIG 1:**



**Gender of the Patients.**

The above mentioned graph depicts the gender of the patients reported with asthma for dental extraction. Female reported with asthma for extraction is about 56.10% whereas male is about 43.90%. Female patients' percentage is higher than the male patients reported with asthma for extraction.

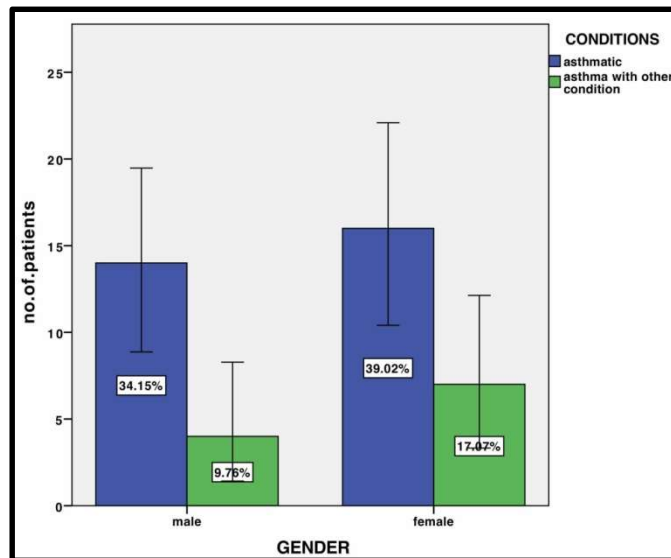
**FIG 2:**



**Patients with asthma and asthma with other conditions.**

The above mentioned graph represents the patients reported for extraction with the medical history of asthma and asthma with other complications . Majority of the patients gave the history of asthma only which was about 71.43% and with other complications is about 28.57%.The most common condition associated with asthma is respiratory failure , physically inactive , improper sleep etc.

**FIG 3:**



**Association between Gender and Other Conditions .**

The above mentioned graph represents the correlation between gender and the complication. Among male 34.15% reported only asthma ,whereas 9.75% reported with asthma and other conditions .Among Female , 39.02%

reported with medical history of asthma and 17.47% reported with asthma and other condition for dental extraction. From the above mentioned graph it is seen that female have highest medical history of asthma.

### **DISCUSSION:**

To avoid asthmatic attack during the extraction procedure, the dental office can be a stress-inducing environment and should avoid materials that may provoke asthma attacks. Asthma contributes to 5% of all medical emergencies in a dental practice. Identification, risk assessment, and prevention of asthmatic attacks should be the primary goal of dentists during dental procedures(31). Dentists should also be trained to respond promptly in case of an asthma-related emergency. Efforts should be made by both the dentist and the patient to prevent the occurrence of asthmatic attacks and collecting proper medical history is much needed. Appointments to be given when attacks are least likely to occur(32). For instance, late morning appointments are best suitable for nocturnal asthmatic patients. Dentists should advise their patients to use their medications regularly, especially before dental procedures such as extraction(33). Patients should be instructed to bring their bronchodilator inhalers to every dental appointment and inhalers should be readily accessible. If patients experience any signs or symptoms of an asthma attack, they should immediately inform their dentist. In the event of the sudden asthmatic attack, the dentist must immediately stop the procedure and remove all the instruments from the patient's mouth. The patient should be positioned in a comfortable and upright position(34). If cooperation by the patient is an issue during the attack, the inhaler may be attached to a spacer device for easier use. If the symptoms do not resolve, Emergency Medical Services (EMS) should be activated and the dentist should administer 0.3-0.5 mL of 1:1000 epinephrine solution via subcutaneous (SC) or intramuscular (IM) injection(35). Certain postoperative medications prescribed by the dentist may precipitate acute asthma attacks for susceptible individuals such as aspirin and nonsteroidal anti-inflammatory drugs should be avoided in patients with aspirin-induced asthma. Alternatively, acetaminophen should be the analgesia of choice for postoperative pain. Patients after extraction tend to have common post operative issues such as dry socket, delayed healing and in case of severe asthmatic patients they may tend to develop some sort of infections.

### **CONCLUSION:**

In summary, previously it was estimated that the prevalence of asthma in India is about 3% i.e 30 million patients. Dentists are most likely to encounter asthmatic patients with varying levels of severity and stability. Although the majority of asthmatics have well-tolerated routine dental procedures, it is necessary to be well-equipped and prepared to act promptly in the case of an emergency asthmatic attack. For this reason, dentists should educate themselves about the various triggers and pathological mechanisms of asthma. Implementing innovative preventive measures including patient education about oral hygiene care and scheduling regular dental checkups not only benefits the patient's oral health, but also reduces the need for complex dental treatments that are more likely to provoke an exacerbation of asthma.

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**CONFLICT OF INTEREST:** None

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