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SNOT-22 Scoring in Patients With Bronchial Asthma

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Abstract:

- ***Introduction:***

Based on the unified airway concept, Bronchial Asthma and Chronic Rhinosinusitis have significant effect on each other in terms of disease severity and progression.

- ***Aim:***

To find clinical co-relation between the degree of severity of sinonasal symptoms of Chronic Rhinosinusitis in asthmatic patients.

- ***Methodology:***

A prospective study was conducted to examine the co-relation between the sino nasal symptoms severity of CRS in asthmatic patients using SNOT-22 questionnaire. 100 patients with bronchial asthma were evaluated for the severity of the sinonasal symptoms of Chronic Rhinosinusitis. A score of more than 22 was considered to be significant.

- ***Results:***

60 patients with bronchial asthma were evaluated. SNOT-22 scoring was mild (8-20) in 9 patients, moderate (20-50) in 32 patients and severe (more than 50) in 9 patients. The mean average score was 41.4.

- ***Conclusion:***

Chronic Rhinosinusitis and Asthma are in fact dependent and have disastrous effects on each other if not controlled properly. Therefore Bronchial Asthma and Chronic Rhinosinusitis must be regarded and dealt with as a unified airway disease for better disease control.

Keywords:- *Unified Airway, Bronchial Asthma, Chronic Rhinosinusitis, SNOT-22 Scoring.*

I. INTRODUCTION

There is a clear division of the human airway into two segments, structurally and functionally. They are named upper and lower segments, though the diseases more often than not coexist[1]. There has been an high incidence of Chronic Rhinosinusitis in asthmatic patients and is often co-related with poor outcomes of asthma[2.] There has been emphasis on the probability that the upper airway has a major role in Bronchial asthma, especially in its pathogenesis. Sinusitis is a considered to be a trigger in many asthmatic patients and hence given special attention[3]. Many recent studies indicate that patients with uncontrollable asthma will show improvement when coexistent sinusitis is treated medically or surgically suggestive of a causative role of sinusitis in the lower segmental airway disease. Moreover, interventional surgeries for CRS, like the Endoscopic sinus surgery[4] are not performed in asthmatic patients due to high risk of resistance. SNOT-22 Scoring is an approved tool that covers a large number of symptoms including the physical, functional and emotional consequences faced by the patients with CRS[5].

II. AIM

To find clinical co-relation between the degree of severity of sinonasal symptoms of Chronic Rhinosinusitis in asthmatic patients.

III. OBJECTIVES

- To determine the degree of severity of sinonasal symptoms of CRS in asthmatic patients using SNOT-22 scoring
- To find the clinical co-relation between CRS and Bronchial asthma

IV. METHODOLOGY

This was a hospital based prospective study conducted in Saveetha Medical College and Hospital, Thandalam. Approval of the institute's ethics and research committee was obtained prior to the study. A written informed consent was obtained from the patients who are willing to take part in the study and for the use of their clinical data. The study was done between the month of January 2019 to March 2019. Bronchial asthmatic patients diagnosed in reference to the GINA[6] guidelines (The global initiative for Asthma) were enrolled prospectively.

The exclusion criteria included unwilling patients, patients with diabetes, severe immunodeficiency, any malignancies, nephropathies and other chronic illnesses. The patients enrolled were evaluated for severity of their sino nasal symptoms using SNOT-22 scoring. The SNOT-22 questionnaire was explained to patients and they were made to grade the severity of their sino nasal symptoms for further evaluation.

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V. RESULTS

60 patients in total diagnosed with Bronchial asthma were evaluated for sinonasal outcomes using the SNOT-22 scoring. 25.5 was recorded as the patients average age. There were 24 females and 36 male patients. 41.4 was recorded as the average SNOT-22 score. Mild (8-20) score was seen in 9 patients, moderate (20-50) in 32 patients and severe (more than 50) observed in 9 patients.

Mild (8-20)	Moderate (>20-50)	Severe (>50)	Average
9	32	9	41.4

Table 1

VI. DISCUSSION

The air passage extends from the nostril to the terminal bronchioles and alveoli of the lung. The upper and lower airway tract is lined by ciliated columnar epithelium which is unveiled to the outside environment. The nose, along with the paranasal sinuses which mainly forms the upper airway becomes the first line of defence against these outside factors. A substantial link between upper and lower airway disease, most common of which are due to the secretions of the inflamed sinuses which are aspirated into the lower segment of the airways[1], Nasal bronchial reflex postnasal drip of cells and or mediators of inflammation from the nose and into the lower segment of the airways, production of cytokines and bronchoconstrictive mediators[5], mouth breathing as an important consequence of nasal obstruction leading to extreme drying of the lower airways. Sinonasal disease tends to produce different effects in asthmatics compared to the general population. A study by Rolla et al, evaluated the patients with any nasal symptoms to figure out if the severity and the characteristics were associated with a lower airway disease. They established that asthma was more often associated with Chronic Rhinosinusitis and persistent allergic rhinitis, compared to non-allergic rhinitis[7]. Evidences support the latter mechanism which emphasizes on the major stint played by eosinophil in the pathogenesis of both the airways[8].

Various studies have concluded that the severity and progression of sinonasal disease is associated with the lower airway disease. Ponte et al study of 557 severe asthmatic patients found that, those who had severe sinonasal symptoms, also had severe asthma. This conveys that asthma, rhinitis and sinusitis are all co-related and must be dealt as a unified airway disease[9].

The study of course has some limitations like non comparison with non asthmatic patients to set the strong evidential base and it is always recommended to compare with a control group for better reasoning of the study objectives. Secondly, the study only relied on one questionnaire (SNOT-22). Thirdly, the sample size of the study was insufficient to analyse the subgroup diseases. Other contributing factors like atopy, nasal polyposis were not included. This research study can be further directed prospectively to include a follow up treatment to assess any improvement in asthma control and sinonasal symptoms. It can also be used to determine if any Chronic Rhinosinusitis intervention enhances the progression of asthma and other lower airway diseases.

VII. CONCLUSION

The study concludes that the increasing severity of sinonasal symptoms of Chronic Rhinosinusitis is co-related with Bronchial asthma based on SNOT-22 scoring. The main conclusion of the study is to emphasize that though Chronic Rhinosinusitis and Asthma are two different entities, it is very essential to view and treat them as a common airway disease.

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