

The Prevalence of Rhinosinusitis Symptoms in Al Baha Region, 2017

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Abstract:Objective: Rhinosinusitis is a huge burden on the health system and is becoming a concern in many countries. The range for overall rhinosinusitis-related health care costs in Saudi Arabia is not studied yet, but it was about \$6.9 to \$9.9 billion USD per year in USA.

The general objective of this study was to identify the prevalence of rhinosinusitis in Al-Baha region.

Methods: A cross sectional study that took place in Al-Baha from 17th of March 2017 until 4th of April 2017. A total of (191) questionnaires in total were collected and analyzed. The purpose of the study was explained and an individual consent from each participant was gained prior to filling the questionnaire.

Results: Data were analyzed using (SPSS- version 21.00). Of all participants, (32.5%) had a runny nose, (39.8%) had nasal congestion, (39.3%) had facial pain/pressure or headache, (18.8%) had post nasal drips, and (20.4%) had decreased smell/taste. On correlational test, there was a significant association between female and runny nose, (p -value= 0.028). Another significant association was the presence of symptoms among asthma patients, decrease the smell/taste (p -value= 0.001), runny nose (p -value= 0.032), face pain/pressure or headache (p -value= 0.012).

Conclusion: We believe that the high prevalence of symptoms may indicate under-diagnosed cases, which raises the concern of developing serious complications. The net result of the study indicates the need for a high index of clinical suspicion and proper management to prevent complications.

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I. Introduction

Sinusitis is defined as the inflammation of the lining of the paranasal sinuses and it is rarely to occur without concurrent rhinitis, so, we adopt the preference of the name (Rhinosinusitis).^[1] Acute rhinosinusitis is the fifth most common diagnosis indicating antibiotic prescriptions, taking 0.4% of ambulatory diagnoses.^[2] It is a huge burden on the health system and is being a concern in many countries. in a systematic review study of adulthood chronic Rhinosinusitis cost, 44 studies were identified for inclusion, the range for overall CRS-related healthcare costs was \$6.9 to \$9.9 billion USD per year in USA.^[3]

The American Academy of Otolaryngology–Head and Neck Surgery has classified rhinosinusitis per the duration of symptoms to acute, subacute, recurrent acute, and chronic.^[4-6] Acute Rhinosinusitis is further classified to bacterial and viral.^[4] It is commonly caused by viral and associated with the common cold.^[6,7] (40%) of acute rhinosinusitis resolve without antibiotics, of viral rhinosinusitis 98% is a self-limiting condition.^[2] Acute bacterial rhinosinusitis commonly results as a complication of upper respiratory tract infection, so, it is not easy to differentiate rhinosinusitis from other similar infections.^[7-8]

With the challenges in diagnosing rhinosinusitis, we face the common serious complications of acute bacterial sinusitis, which may include, osteomyelitis, cavernous sinus thrombosis, intracranial abscess, meningitis, and subdural abscess.^[9-10] With a better understanding of the symptoms and how is the condition may go under-diagnosed will help to prevent the serious complications.

Currently there is no data about rhinosinusitis in Al-Baha region. All the complications mentioned about rhinosinusitis could be avoided by picking up the symptoms and giving appropriate treatment in health care facilities. Avoidance of the risk factor by increasing the community awareness by conducting health campaigns and allocation pamphlets to the society. Also, researchers can look the risk factors of rhinosinusitis in Al-Baha, which will help us to learn more about how it can go under-diagnosed resulting in the previously

mentioned complications. The present study is aimed to assess the prevalence of rhinosinusitis symptoms in Al-Baha region.

II. Material And Methods

The present study is a cross-sectional study used a modified questionnaire from the sinus center of Harvard medical school to evaluate the prevalence of rhinosinusitis symptoms in Al-Baha region. The data collection took place in three provinces, (Al-Aqiq, Al-Baha, and Baljurashi), all are high altitude areas. Data collection started at 17th of March 2017 and continued until 4th of April 2017. The investigators collected data throughout the week and not mainly on weekends or weekdays, the time of the collection was mainly at the evening to get more response rate, data collection at mornings will not involve school children as they will be at school for their classes.

Everyone was eligible to participate in the study, if the participant gives consent to fill out the questionnaire. Children forms were filled by their parents. The investigators were present at the time of data collection to explain any questions or unclear words.

The questionnaire included the presence and severity of major and minor symptoms, ^[4] use of antibiotics, use of antihistamines, smoking, and asthma comorbidity.

The data were analyzed using (PASW 21.00) previously called SPSS. Frequencies and percentage analysis were used to define the percentage of the reported symptoms, while Chi Square test was used to determine the association of the symptoms with the personal characters of the sample like; age and sex.

The present study is approved by the research committee at faculty of medicine, Al-Baha university.

III. Result

A total of (923) questionnaires were collected. Some questionnaires were incomplete or falsely filled (n=32) therefore, they were excluded. However, A total of (191) responses were analyzed, the males represent (53.4%) of our sample, while females represent (46.6%).

Of the studied sample, results have showed that the presence of major symptoms was as follow: Runny nose (32.5%), Nasal congestion (39.8%), Face pain/pressure or headache (39.3%), Post nasal drips (18.8%), and Decrease smell/taste (20.4%).

The symptoms were generally more prevalent among females as reported by the participants in our sample. (Table II) The reason might be that the women generally tend to report symptoms more than males.

Regarding the severity of symptoms, the majority of our sample who had the symptoms have indicated a mild course. The symptoms frequently reported as severe by our sample were, Headache (17.3%), Lack of good night sleep (16.8%), Fatigue (13-6%), and Reduced concentration (12.0%).

Table no 1:Percentage distribution of the differences between male and female subjects on various symptoms and its significance

Symptom	Male	Female	P-value
Runny nose	25.5%	40.4%	0.028
Nasal congestion	35.3%	44.9%	0.176
Face pain / pressure or headache	36.3%	42.7%	0.367
Post nasal drips	19.6%	18.8%	0.775
Decrease smell or tast	20.6%	20.2%	0.951

Table no2: percentage variation in symptoms between asthmatic and non-asthmatic patients and the significant values.

Symptom	Have asthma	Doesn't have asthma	P-value
Runny nose	50.0%	50.0%	0.032
Nasal congestion	53.6%	46.4%	0.440
Face pain/pressure or headache	60.7%	39.3%	0.012
Post nasal drips	76.9%a	32.1%	0.052
Decrease smell/taste	57.1%	42.9%	0.001

A percentage of our sample were asthmatics and the presence of symptoms among asthmatic participants was high. While analyzing the correlation of asthma with rhinosinusitis symptoms, the results were highly significant (Table II).

The use of antibiotics and antihistamines was found to be common. (61.8%) of our sample have used antibiotics to relieve the symptoms, and (44.0%) have used antihistamines for the same purpose.

IV. Discussion

Regarding our finding of the symptoms being more prevalent among females, A similar finding is also suggested in a study was conducted in Al-Riyadh, where the prevalence of lifetime rhinitis was significantly higher in females (41% versus 46.5%, (p=0.02).^[11]

The significant results that have shown an association between asthma and the of rhinosinusitis symptoms was supported by many studies were done on asthma patients to evaluate the sinuses by CT scan, and the association between asthma and rhinosinusitis was evident.^[14-19]

The use of antibiotics has a little if any good effect on the symptoms if given based on a clinical diagnosis.^[20] So, here we raise another issue of diagnosing rhinosinusitis, differentiating between bacterial and viral, and from other diseases with a similar presentation. The nasal endoscope is a good diagnostic tool in case of clinical suspicion with more than (90%) sensitivity.^[21]

The strengths of the study were as follow; the study is the first and only study in high altitude regions indicating a high prevalence of rhinosinusitis symptoms. Also, the inclusion criteria have given everyone the choice to participate, which indicates equal chances of all ages and nationalities to participate. Also, the investigators were present at the time when participants filled the questionnaire, to explain the purpose of the study and answer any questions participants may have.

The relatively small sample size with the large variability of the population may make the data less specific to be conclusive for a defined or targeted population. As the data were collected only in Al-Baha region, the results may therefore not be generalized to other regions and communities. So, we encourage similar studies in other cities and areas of Saudi Arabia.

After looking at the literature, it was found that this is the only study that has investigated rhinosinusitis in Al-Baha region, and it has indicated a high prevalence of rhinosinusitis symptoms. We believe that the high prevalence of symptoms may indicate under-diagnosed rhinosinusitis. The development of complications is a concerning issue that should be sought and taking care of. Training General Practitioners (GPs) on using nasal endoscope will facilitate the diagnosis, improve the outcome for the patients, and limit the unnecessary referral to Otorhinolaryngology (ORL) clinics.

V. Conclusion

Our findings indicate a high prevalence of rhinosinusitis symptoms in Al-Baha region, Saudi Arabia. However, females tend to have a higher prevalence of symptoms than males. Antibiotic abuse was common among those who have the symptoms. Thus, we recommend the use of a nasal endoscope to diagnose bacterial rhinosinusitis and prescribe antibiotics accordingly.

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