ORIGINAL RESEARCH

Analysis of Pediatric Patients Suffering fromSinusitis with Frequent Respiratory Infections: An Institutional Based Study

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ABSTRACT
Background: Sinusitis, defined as an inflammation of the mucosal lining of one or more of the paranasal sinuses, can be classified arbitrarily by the duration of clinical symptoms into acute (<30 days), subacute (30–90 days), and chronic (>90 days) disease.Pediatric sinusitis has a significant adverse effect on health-related quality of life in children. Hence, the present study was conducted to analysepediatric patients suffering from sinusitis with frequent respiratory infections.**Materials &Methods:**A cohort of 100 patients, all aged 18 years or younger, was recruited for the study. Comprehensive demographic and clinical information for each participant was collected. Enrollment was restricted to individuals with a documented history of chronic respiratory infections. A thorough review of all medical records was conducted. Data was systematically extracted from the files utilizing a pre-structured data extraction sheet to ensure standardization and minimize errors. Detailed personal information regarding symptoms, including fever, headache, pain, nasal obstruction, and mucous discharge, as well as results from mucous culture investigations, was gathered from the patients' records using the data sheet.**Results:**A total of 100 children were evaluated. Mean age of the children was 14.8 years. Majority proportion of children were boys and belonged to urban residence. Positive family history of sinusitis was seen in 43 percent of the children. Sinusitis was seen in 51 percent of the patients. Among majority of cases with sinusitis, maxillary sinus was involved.**Conclusion:** The research indicated that sinusitis is prevalent among children across various age groups, particularly affecting the maxillary and frontal sinuses. While medical management is often effective and preferred in the majority of instances, a minority of cases may necessitate surgical intervention.
Key words: Sinusitis, Pediatric, Respiratory.

INTRODUCTION

Sinusitis, defined as an inflammation of the mucosal lining of one or more of the paranasal sinuses, can be classified arbitrarily by the duration of clinical symptoms into acute (<30 days), subacute (30–90 days), and chronic (>90 days) disease.[1, 2] Acute sinusitis can be caused by viral, bacterial, or fungal infections, environmental irritants, and allergy. Acute bacterial sinusitis (ABS) usually results from secondary bacterial infection of the sinus. It has been estimated that approximately 7.5% of upper respiratory tract infections (URI) in children are complicated by ABS.[3,4]

Pediatric sinusitis has a significant adverse effect on health-related quality of life in children. Despite widespread acceptance of this principle, the proper management of sinusitis in children is controversial. One school of thought maintains that the disease is typically self-limited and therefore should be treated rarely with antibiotics, and almost never with surgery. Others maintain that these infections should be treated with aggressive medical therapy and surgical treatment when medical therapy fails.[5]

The relationship between allergy and RS in children is well known. More than 80% of children with RS have a family history of allergy, as opposed to a general population allergy frequency of 15% to 20%. More than half of sinusitis is closely associated with asthma, a recognized allergic-mediated disease. Finally, when various allergy tests are employed, more than half of the children with chronic sinusitis will have some element of allergy.[6- 8] Hence; the present study was conducted to analysepediatric patients suffering from sinusitis with frequent respiratory infections.

MATERIALS & METHODS

The present study was conducted to analyse pediatric patients suffering from sinusitis with frequent respiratory infections.A cohort of 100 patients, all aged 18 years or younger, was recruited for the study. Comprehensive demographic and clinical information for each participant was collected. Enrollment was restricted to individuals with a documented history of chronic respiratory infections. A thorough review of all medical records was conducted. Data was systematically extracted from the files utilizing a pre-structured data extraction sheet to ensure standardization and minimize errors. Detailed personal information regarding symptoms, including fever, headache, pain, nasal obstruction, and mucous discharge, as well as results from mucous culture investigations, was gathered from the patients' records using the data sheet.All the results were recorded and evaluated using SPSS software.

RESULTS

A total of 100 children were evaluated. Mean age of the children was 14.8 years. Majority proportion of children were boys and belonged to urban residence. Positive family history of sinusitis was seen in 43 percent of the children. Sinusitis was seen in 51 percent of the patients. Among majority of cases with sinusitis, maxillary sinus was involved.

Table 1: Demographic data

Variable	n	%
Mean age (years)	14.8	
Boys	66	66
Girls	34	34
Positive family history of sinusitis	43	43

Table 2: Incidence of sinusitis

Sinusitis	n	%
Present	51	51
Absent	49	49
Total	100	100

Table 3: Sinus involvement

Sinus	n	%
Maxillary sinus	39	76.47
Frontal sinus	12	23.53
Total	51	100

DISCUSSION

In pediatric populations, acute rhinosinusitis (ARS) typically manifests with a sudden onset of severe symptoms, including fever exceeding 39°C, purulent nasal discharge, and facial discomfort. Alternatively, it may present as a prolonged upper respiratory infection characterized by chronic cough and nasal discharge. A study investigating the correlation between symptoms of acute respiratory infections and objective sinus changes through MRI scans involved 60 children (mean age = 5.7 years) who exhibited symptoms for an average duration of 6 days prior to imaging. Approximately 60% of these children displayed abnormalities in their maxillary and ethmoid sinuses, 35% in the sphenoid sinuses, and 18% in the frontal sinuses. A follow-up MRI conducted two weeks later on 26 of the children, who initially showed significant abnormalities, revealed a notable decrease in the extent of these abnormalities, regardless of the resolution of clinical symptoms. Consequently, similar to adults, each upper respiratory infection in children can be regarded as a self-limiting and self-resolving episode of rhinosinusitis, frequently involving the paranasal sinuses due to viral infection.[6- 9]Hence; the present study was conducted to analysepediatric patients suffering from sinusitis with frequent respiratory infections.

A total of 100 children were evaluated. Mean age of the children was 14.8 years. Majority proportion of children were boys and belonged to urban residence. Positive family history of sinusitis was seen in 43 percent of the children. Sinusitis was seen in 51 percent of the patients. Among majority of cases with sinusitis, maxillary sinus was involved. Leung AKperformed a PubMed search was performed using the key term 'acute sinusitis'. The search strategy included clinical trials, meta-analyses, randomized controlled trials, observational studies, and reviews. The search was restricted to the English literature and children.Haemophilus influenzae (non-typeable), Streptococcus pneumoniae, and Moraxella catarrhalis are the major pathogens in uncomplicated ABS in otherwise healthy children. In complicated ABS, polymicrobial infections are common. The diagnosis of acute sinusitis is mainly clinical and based on stringent criteria, including persistent symptoms and signs of a URI beyond 10 days, without appreciable improvement; a URI with high fever and purulent nasal discharge at onset lasting for at least 3 consecutive days; and biphasic or worsening symptoms.Data from high-quality studies on the management of ABS are limited. The present consensus is that amoxicillin-clavulanate, at a standard dose of 45 mg/kg/day orally, is the drug of choice for most cases of uncomplicated ABS in children in whom antibacterial resistance is not suspected. Alternatively, oral amoxicillin 90 mg/kg/day can be administered. For those with severe ABS or uncomplicated acute sinusitis who are at risk for severe disease or antibiotic resistance, oral high-

dose amoxicillin-clavulanate (90 mg/kg/day) is the drug of choice.[10]

Lin SW et al evaluated the risk of incident acute rhinosinusitis among pediatric patients with allergic rhinitis, using a nationwide, population-based health claims research database.Newly diagnosed allergic rhinitis patients aged 5–18 years were identified from the health claim records of the Longitudinal Health Insurance Database 2000 of Taiwan's National Health Insurance Research Database. A comparison cohort was assembled by randomly selecting patients from the same database with frequency matching by sex, age group, and index year. All patients were followed until a diagnosis of acute rhinosinusitis or the end of the follow-up period. Cox proportional hazards model was used to assess the association between allergic rhinitis and acute rhinosinusitis.Of the 43,588 pediatric patients included in this study, 55.4% were male and 43.9% were between the ages of 5.0–7.9 years. The risk of acute rhinosinusitis was significantly higher in pediatric patients with allergic rhinitis compared to those without the condition (adjusted hazard ratio = 3.03, 95% confidence interval = 2.89–3.18). Similar hazard ratios were observed between male and female pediatric patients.[11]

CONCLUSION

The research indicated that sinusitis is prevalent among children across various age groups, particularly affecting the maxillary and frontal sinuses. While medical management is often effective and preferred in the majority of instances, a minority of cases may necessitate surgical intervention.

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