Rhinosinusite Acute

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Abstract: Upper airway infections (IVAS) are the most common infectious diseases during childhood, being characterized by being located in the upper respiratory tract. Acute rhinosinusitis is a type of URTI that causes symptomatic inflammation of the nasal cavity and paranasal sinuses lasting less than 4 weeks. The general objective is to analyze the profile of patients, aged 0 to 60 years, diagnosed with rhinosinusitis acute, attended at the private Hospital, located in the municipality of Aracaju / SE, during the years 2014 to 2018. This article was built on from a course conclusion work that was based on a research which was a descriptive, cross-sectional, observational and retrospective study of public archives at the Hospital da particular de Sergipe, where secondary data collection was made, from information from medical records. In the analyzed data, patients were mandatorily aged between 0 and 60 years old, as well as were seen during the years 2014 to 2018. The period in which there was a higher incidence of cases of URTI was between March and June, characterizing a greater incidence during the autumn period. The results showed an annual average of 8587 patients with URTI, with 2018 having the highest incidence. The main age group affected by URTI was between 0 and 9 years old, representing 25,790 (60.1%) patients, and adults were responsible for 9421 (21.9%). The results showed a greater involvement in the female gender and in the group from 0 to 19 years old. Due to the high incidence of this pathology, the greatest complaint in adult women among the population studied is evident and the importance of primary care to it in view of the large amount of expenses with the diagnosis and treatment of symptoms of acute rhinosinusitis.

1. Introduction

Upper airway infections (URTI) are characterized by being infections located in the upper respiratory tract, which is divided into mouth, larynx, pharynx, nose and trachea. URTIs are the most common infectious diseases during childhood (AGLIPAY et al., 2017). In the United States, there are 32 million annual cases of URTI in children up to 1 year old and about 200 million in the population aged 1 to 20 years (WEINTRAUB et al., 2015). In this context, rhinosinusitis acuteis a type of upper airway infection that causes symptomatic inflammation of the nasal cavity and paranasal sinuses lasting less than 4 weeks. It can be classified through its etiology into viral, uncomplicated bacterial, complicated bacterial and, in rare cases with immunosuppressed people, fungal. Its main agents are viruses, mainly rhinovirus, influenza virus and parainfluenza virus (DEBOER et al., 2020). However, rhinosinusitis acute bacterialonly represents about 0.5% to 2% ofepisodes rhinosinusitis acute, since it commonly occurs as a complication of viral infection or as a complication ofrhinosinusitis allergic. In these cases, the main agents are Streptococcus pneumoniae, Haemophilus influenzae and Moraxella catarrhalis, responsible for 38%, 36% and 16% of cases respectively (DEBOER et al., 2020). The clinical picture of rhinosinusitis acutecan present nasal congestion, purulent nasal discharge, fever, asthenia, cough, facial pain when receiving localized pressure in the paranasal sinuses, hyposmia / anosmia and headache. Some patients may exhibit symptoms tube of Eustachiandys function, such as otalgia, decreased sense of hearing acuity and increased internal pressure ear (ROSENFELD et al., 2016). She has a clinical diagnosis and her initial treatment is based on symptomatic therapy. Analgesics, antipyretics, saline irrigation and the use of intranasal glucocorticoids are used to manage symptoms. In the case of acute bacterial rhinosinusitis in adults, the use of antibiotic therapy is necessary, and, initially, the use of amoxicillin or amoxicillin with clavulanate is recommended (PATEL et al., 2017).

General Objective

The present study has the general objective of analyzing the profile of patients, aged 0 to 60 years, diagnosed with rhinosinusitis acute, treated at a private hospital, located in the municipality of Aracaju / SE, from 2014 to 2018.

Specific Objectives

As for specific objectives, we have:

- To determine the total number of patients from 0 to 60 years old diagnosed with rhinosinusitis acute, treated at the hospital, from 2014 to 2018;
- Research the relationship of rhinosinusitis acute with gender and age;
- Quantify the total number of patients diagnosed with URTI in this period;
- Find data on the incidence of URTI in relation to gender, age, origin andseasonality.

2. Materials and Methods

This article was built from a course conclusion work (CBT) that was based on a research which was a descriptive, cross-sectional, observational and retrospective study of public archives in the private hospital, where secondary data were collected, based on the systematized information in the

medical records. In all the data analyzed, the patients were mandatorily aged between 0 and 60 years old, as well as being seen during the years 2014 to 2018. Patients with incomplete data were excluded.

The following procedures were performed:

- a) Separation of patient data between 0 and 60 years old who were attended during the years 2014 to 2018, in order to better delimit the spectrum to bestudied;
- b) Collection of information related to age, gender, origin, period and outcome;
- c) The criterion used to classify visits was the tenth revision of the International Disease Code (ICD 10), in which upper airway infections can be found and recorded as:
 - J00 Acute nasopharyngitis;
 - J02 Acute pharyngitis;
 - J03 Acute tonsillitis;
 - J04 Acute laryngotracheitis;
 - J05 Acute obstructive laryngitis;
 - J06 Upper airway infection;
 - L01 Acute sinusitis;
- d) Segregation of data into groups stratified as follows: from 0 to 9 years, from 10 to 19 years and from 20 to 60 years. In addition, they were separated by gender: male and female. They were also separated according to the months in which they occurred and their origin: Aracaju, interior of the state and others (addressing patients from outside Sergipe);
- e) Exclusion, from the medical records analyzed, of patients older than 60 years;
- f) Illegible data or incomplete information were not considered eligible.

The data were compiled in the Microsoft Office Excel program. Qualitative and quantitative variables were obtained. For qualitative variables, the descriptive analysis proceeded with the categorization of data and obtaining the respective frequencies and percentages and the calculation of the mean, median, standard deviation, minimum and maximum of the quantitative variables. In addition, an inferential analysis was performed with the crossing between categorical variables. To verify the association between the diagnosis and the variables gender and age group, the Chi-square test (χ^2) (PEARSON, 1992) was used, and when there was an observed frequency lower than 5, Fisher's exact test (FISHER, 1922) was calculated *Oddis*

Ratio (OR), defined as the ratio between the chance of an event occurring in one group and the chance of occurring in another group. In summary, if the outcome is the same in both groups, the ratio will be 1, which implies that there is no difference between the two study groups. That is, if the p-value of the applied test is not significant or if the value 1 is within the confidence interval, we will say that the OR will not be significant. However, if OR <1, the analyzed variable is considered a protective factor for the outcome to occur and if OR> 1 is a risk factor. The software used for statistical analysis was R, version 3.5.0 (THE R CORE TEAM, 2018), and the level of significance adopted in all hypothesis tests was 5%. The research TCC was submitted to the Research Ethics Committee, under CAAE 20429219.9.0000.537.

3. Results

An average of 8587.4 (\pm 448.8) patients with problems related to Acute Upper Airway Infections (J00 - J06; L01) were treated during the period from 2014 to 2018. In **Table 1**, it can be seen that the year 2018 presented the highest number of attendances (n = 9162; 21.3%). Regarding the type of care, most patients were seen in the emergency room (n = 42863; 99.8%).

Table 1: Frequency distribution of patients with problems related to acute infections of the upper airways (J00 - J06; L01) according to the year and type of care. Aracaju,2019

| | 7 | |
|-----------------------|---------------|----------------|
| Variable \ Categories | Frequency (N) | Percentage (%) |
| Year of Service | | |
| 2014 | 8008 | 18.7 |
| 2015 | 8894 | 20.7 |
| 2016 | 8453 | 19.7 |
| 2017 | 8420 | 19.6 |
| 2018 | 9162 | 21.3 |
| Type of Service | | |
| Urgency | 42863 | 99.8 |
| Hospitalization | 73 | 0.2 |

It is observed that, during the analyzed period, the month of May presents the highest average of attendance (965.4 \pm 151.8), whereas the month of January presents the lowest average attendance (506.2 \pm 12.8) (**Figure 1**).



Mês de Atendimento

Figure 1: Average number of patients seen per month between the years 2014 to 2018. Aracaju, 2019

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Of the patients seen, it appears that the average age is 13.4 (\pm 13.3) years, ranging from 0 to 60 years, with the majority of patients being in the age group 0 to 9 years(n = 25790, 60.1 %), is female (n = 21831, 50.9%) and resident of Aracaju (n = 34495, 30.3%) (**Table 2**).

 Table 2: Characterization of patients treated with problems

 related to acute infections of the upper airways (J00 - J06;

 L01). Aracaiu, 2019

| Variable | Minimum | Maximum | Average | Standard Deviation |
|-----------------------|---------|---------|----------------|--------------------|
| Age | 0 | 60 | 13.4 | 13.3 |
| Variable \ Categories | Freque | ncy (N) | Percentage (%) | |
| GENDER | | | | |
| Male | 21 | 102 | | 49.1 |
| Female | 21832 | | | 50.9 |
| AGE RANGE | | | | |
| 0 to 9 years old | 25 | 790 | | 60.1 |
| 10 to 19 years old | 7726 | | | 18.0 |
| 20 to 60 years old | 9421 | | | 21.9 |
| CITY | | | | |
| Aracaju | 344 | 495 | | 80.3 |
| Interior | 7823 | | | 18.2 |
| Others | 619 | | | 1.4 |

Regarding patients treated for Upper Airway Infection (J00-J06; L01), it was shown that 49.1% of the patients were male, while 50.9% were female. The main age group affected was from 0 to 9 years old, representing 60.1%. The age group that corresponds to adults (20 to 60 years old) presented 21.9% and the range of adolescents (10 to 19 years old) represented 18% of the sample. Most patients came from 80.3% of the capital, the other cities in the state represented 0.1%. In general, most patients were diagnosed with Acute Tonsillitis (n= 13225, 30.8%) and (IV ASn=12749, 29.7%) (Table 3).

 Table 3: Distribution of patients' frequency according to diagnosis. Aracaju 2019

| 5 | | |
|---------------------------------------|---------------|-------------|
| Variable / categories | Frequency (N) | Percent (%) |
| Diagnosis acute nasopharyngitis (J00) | 6720 | 15.65 |
| acute sinusitis (L01) | 3871 | 9:02 |
| acute pharyngitis (J02) | 4792 | 11:16 |
| acute tonsillitis (J03) | 13225 | 30.80 |
| acute Laringitetraqueíte (J04) | 1562 | 3.64 |
| Acute obstructive laryngitis (J05) | 18 | 0.04 |
| (J06) | IVAS12749 | 29.69 |

In **Table**4, it is observed that the gender and age are statistically associated with the diagnosis of acute sinusitis. The chance of female patients is 1.25 times greater than that of men in being diagnosed with acute sinusitis. The age group from 0 to 9 years old and 10 to 19 years old works as a protective factor when compared to people aged 20 to 60 years.

Table 4: Association between the diagnosis of AcuteSinusitis with sex, age group and referral to thehospitalization sector. Aracaju, 2019

| Acute Sinusitis (L01) | | | | | | | |
|-----------------------|------|------|-------|------|----------------------|--|--|
| Variable \ | Yes | | No | | OR P Value | | |
| Categories | Ν | % | Ν | % | | | |
| SEX | | | | | | | |
| Female | 2164 | 9.9 | 19668 | 90.1 | 1,250 (1,170; 1,336) | | |
| Male | 1707 | 8.1 | 19395 | 91.9 | 1 | | |
| AGE RANGE | | | | | | | |
| 0 to 9 years | 1788 | 6.9 | 24002 | 93.1 | 0.476 (0.441; 0.513) | | |
| 10 to 19 years old | 807 | 10.4 | 6919 | 89.6 | 0.745 (0.678; 0.818) | | |
| 20 to 60 years old | 1276 | 13.5 | 8145 | 86.5 | 1 | | |
| ENC. INTERNAL | | | | | | | |
| SECTOR | | | | | | | |
| Yes | 8 | 13.3 | 52 | 86.7 | 1,554 (0.738; 3,273) | | |
| No | 3863 | 9.0 | 39014 | 91.0 | 1 | | |

4. Discussion

Upper Airway Infections are one of the most common benign infections in the world. In the United States, there are about 32 million annual cases of URTI in children under 1 year of age and about 200 million among children between 1 and 3 years of age (WEINTRAUB et al., 2015). Another study reports that URTIs are the cause of medical consultations for approximately 10 million people annually in the United States (THOMAS et al., 2018). No studies were found that report a higher incidence related to gender. There is a study that reports a higher incidence of URTI in cities that are more industrialized and have a greater number of people (ZHOU et al., 2017). A British study reports the relationship between the occurrence of upper airway infections and cold temperatures. An increase in the occurrence of these infections is observed during the periods from September to February, which represent the autumn and winter seasons in the northern hemisphere. Despite this relationship, there is still controversy about the cause of this phenomenon (ECCLES et al., 2015). A Brazilian study reports a higher incidence in periods of rain, indicating seasonality (MOURA et al., 2003). In the present study, the period in which there was a higher incidence of cases of URTI was the period between March and June, characterizing a higher incidence during the autumn period. The results of the present study showed an annual average of 8587 patients with URTI, with 2018 having the highest incidence. The main age group affected by URTI was between 0 and 9 years old, representing 25,790 (60.1%) patients, and adults were responsible for 9421 (21.9%). The main origin of the patients is Aracaju, representing 80.3%, and the female gender was the most affected, 50.9% of the cases. Acute rhinosinusitis is the fifth most common diagnosis in the United States, affecting about one in seven adults a year and costing about \$ 11 billion in health care spending annually in primary care (CHAN et al., 2016). In addition, it affects 16% of American adults and between 6% and 7% of American children with respiratory symptoms (DEBOER et al., 2020). The present study disagrees with this statement, since the incidence of the disease was found in 17.3% of children and adolescents (from 0 to 19 years old) and in 13.5% of adults (from 20 to 60 years old). In addition, studies show that acute rhinosinusitis is the fifth most common cause of antibiotic prescription - 1 in 5 antibiotic prescriptions for adults - (DEBOER et al., 2020).

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However, it is known that the incidence of bacterial rhinosinusitis does not reach amounts that can justify such a practice, thus favoring a scenario of bacterial resistance to antibiotics. The cause of this is that less than 2% of rhinosinusitis progress to bacterial infections and antibiotics are passed on to more than 85% of cases diagnosed with acute rhinosinusitis (MORCOM et al., 2016).

5. Conclusion

The present study aimed to analyze the cases of rhinosinusitis in patients between 0 and 60 years old in a private hospital in Sergipe. In this context, the results showed a greater involvement in the female gender and in the group from 0 to 19 years old. Due to the high incidence of this pathology, the greatest complaint in adult women among the population studied is evident and the importance of primary care to it in view of the large amount of expenses with the diagnosis and treatment of symptoms of acute rhinosinusitis.

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