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UPPER RESPIRATORY INFECTIONS IN CHILDREN AND THEIR RESPONSE TOWARDS THE RATIONALE ANTIBIOTIC THERAPY

Imran Ahmed[1*], Muhammad Hanif[2], Mushtaque Ali Shah[3], Muhammad Sajid Noor[4], Tasneem Kauser[5], Ashique Ali Arain[6*]

[1*]MBBS, FCPS (Pediatrics), Associate Professor, Department of Pediatrics, Suleman Roshan Medical College, Tando Adam, Sindh, Pakistan
[2]MBBS, DCH, MD (Pediatrics), Assistant Professor, Department of Pediatrics, Suleman Roshan Medical College, Tando Adam, Sindh, Pakistan
[3]MBBS, FCPS (Pediatrics), Associate Professor, Department of Pediatrics, Liaquat University of Medical and Health Sciences Jamshoro, Sindh, Pakistan
[4]MBBS, FCPS(Pediatrics), Assistant Professor, Department of Pediatrics, Suleman Roshan Medical College, Tando Adam, Sindh, Pakistan
[5]MBBS, DCH, MD (Pediatrics), Assistant Professor, Department of Pediatrics, Suleman Roshan Medical College, Tando Adam, Sindh, Pakistan
[6*]MBBS, MCPS (Family Medicine), M. Phil (Pharmacology), Associate Professor, Department of Pharmacology, Liaquat Institute of Medical and Health Sciences, Thatta, Sindh

***Corresponding Author:** Dr. Ashique Ali Arain, Dr. Imran Ahmed
*****[1*]Consultant Family Physician, Associate Professor, Department of Pharmacology, Liaquat Institute of Medical and Health Sciences, Thatta, Sindh, Pakistan,
Email: ashiquepcmd77@yahoo.com, Mob: 03333389250, [6*]Associate Professor, Department of Pediatrics, Suleman Roshan Medical College, Tando Adam, Sindh, Pakistan,
Email: Ahmed.imran@live.com, Mob: 03332693351

Abstract:
Background: Upper respiratory tract is more vulnerable to numerous microbes so Pediatric populations gets easily and frequently infected by these pathogens. Upper respiratory infections Pharyngitis, Tonsillitis and Otitis media are major cause of discomfort in children. **Study Aims:** This particular research with cross sectional design was aimed for assessing various types of upper respiratory infections in pediatric patients presented to the outpatient department of Suleman Roshan Medical College, Tando Adam, Sindh, Pakistan. **Study Methods:** There were 1500 pediatric patients diagnosed as upper RTIs included in the study while all other cases were excluded from this research over a time span of one year using purposive sampling technique. Parents allowed the study with written consent and provided the required data information. The antibiotic response was assessed as resolution of symptoms**. Results:** The male proportion of patients dominated over female proportion with 824 (54.83%) and 676 (45.07%) respectively. Under 5years children were 1044(69.4%) and Pharyngitis above 5 years 456(30.6%). Tonsillitis, Pharyngitis and otitis media were the common upper RTIs observed in the study
Conclusion: Pharyngitis was most common among upper respiratory infections followed by tonsillitis and otitis media all responded well to Macrolides, Penicillin and Cephalosporin class of antibiotics

Key Words: URTIs, Tonsillitis, Pharyngitis, Antibiotics

Introduction:

Respiratory tract infections are responsible for hospitalization of more than12 million under year of age children annually [1]. The risk factors responsible for respiratory infection in children is very long and multidimensional from anemia to lack of proper immunization. Upper respiratory tract is constantly facing microbes ranging from viruses to bacteria causing respiratory discomfort of mild, moderate and severe levels [2]. An estimated figure of about 4-5 million children die due to respiratory infections in developing nations [3]. Upper RTIs commonly present as flu, fever, cough, cry and refusal to feed, ear ache etc. Usually Antibiotics are used for treating common cold, COVID-19, influenza and laryngitis. However, the Evidence also supports the use antibiotics in majority of cases of acute otitis media, Pharyngitis (group A beta hemolytic streptococcal) as well as epiglottitis and acute rhino sinusitis. Many strategies based on evidence have been described for improving the antibiotic prescriptions for acute URTIs [4]. URIs (Upper respiratory tract infections) are responsible for millions of physician visits annually in the USA [5]. It is reported that approximately 10 million antibiotics are wrongly

Prescribed for treating URTIs annually as many types of URTIs don't require antibiotic therapy [6]. It was reported by a study that 41% of the antibiotics prescriptions were unjustified for URTIs in a cohort of 15000 patients [7].

Unjustified use of antibiotics results in drug related adverse events, drug resistance, and financial burden so it is very important know which URTIs don't deserve antibiotics and it is equally important to know the URTIs which always require antibiotics for treatment [4].This study was aimed at estimating upper respiratory infections in terms of nature, frequency and percentage and subsequently the response of these infections towards different antibiotics in terms of improvement in symptoms. Hopefully this scientific knowledge will be beneficial for community in many perspectives.

Methodology:

This research was undertaken in the pediatrics OPD (Outpatient Department), of Suleman Roshan Medical College, Tando Adam, Sindh, Pakistan from January 2022 to December 2023. All male and female pediatrics were included in this study through purposive sampling only children with upper RTIs were included while children with other non- infectious diseases, suspected viral infections and other infectious diseases and emergencies were excluded. Patients were diagnosed and treated by pediatricians as per recommended guidelines including all necessary medications. Parents provided us the required relevant data along with the consent in written proforma. Data was analyzed using SPSS version 22 for frequency and percentage. Patients were categorized into male, female, below and above 5 years of age and then according to nature of upper respiratory infection. The use of various antibiotic groups was assured as per recommended guidelines following drug history and ATD (After test dose) where and as required, tables and figures were drawn to represent the results.

Results:

The male patients were 824 (54.83%) and female patients were 676 (45.07%) out of 1500 checked out patients[Figure-1]. Most patients were under the age group of 5years 69.4%(1044) whereas patients belonging to age group above 5years were 30.6%(456) [Table-1]. Most upper RTIs observed were Pharyngitis 752(50.1%)followed by Tonsillitis 709 (47.3%) and otitis media 39(2.6%) were the common upper RTIs observed in the study [Table-2]. Cefixime, Cephalexin, Augmentin (Amoxicillin + Clavulanic acid), Azithromycin, Clarithromycin[figure-2].

Table-1: Gender and Age distribution of study participants

Parameters	Frequency	Percentage
Male	**824**	**54.83%**
Female	**676**	**45.07%**
Below 5Years	**1044**	**69.4%**
Above 5Years	**456**	**30.6%**

Table-2: Nature distribution of upper respiratory infection

Parameter	Frequency	Percentage
Pharyngitis	752	50.1%
Tonsillitis	709	47.3%
Otitis Media	39	2.6%
Total	1500	100%

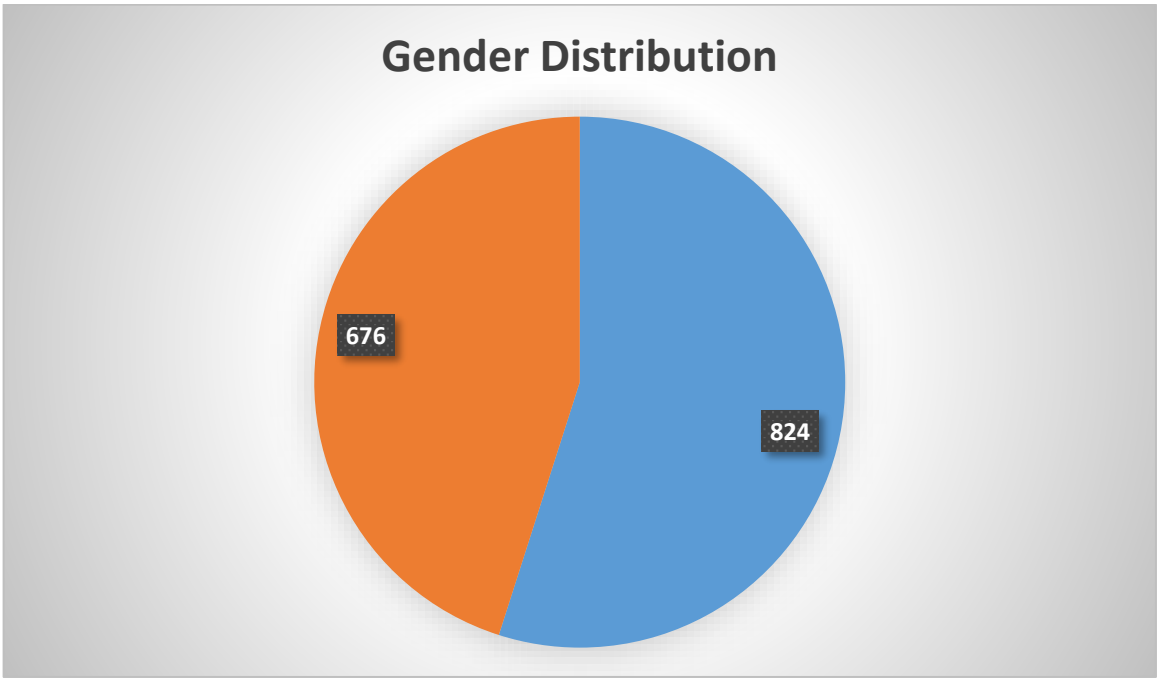

Figure-1: Gender Distribution of study participants

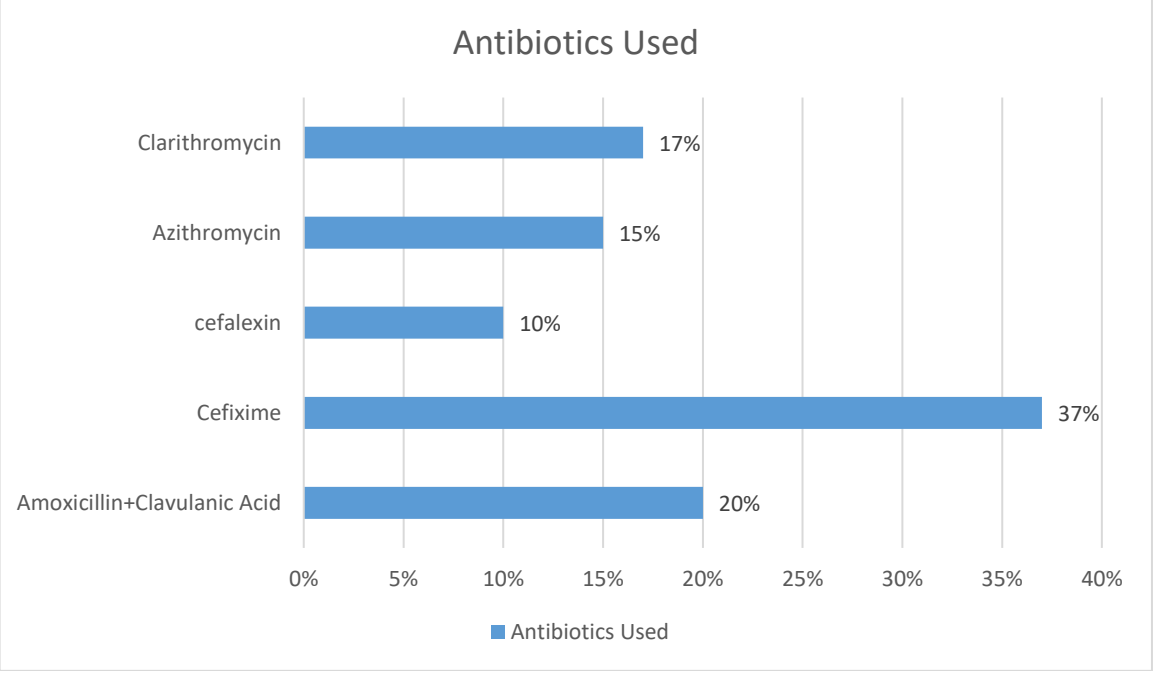

Figure-2: percentage of various antibiotics used by pediatricians

Discussion:

Study results reported by Tazinya et al (2018) are consistent with our results with male dominance 57.62% over female gender 42.58% in terms of RTIs [8]. Similar results were described by Savitha A K and Gopala krishnan et al (2018) with ARI more prevalent in children <below the age of 5 years

and males 50.6% more affected as compared to females 33.5% supporting our results [9]. Mustafa et al (2020) in their retrospective study found that Cefixime was the most used antibiotic in URTIs followed by penicillin derivatives that is consistent with our study [10]. Miss use or irrelational use of antibiotics has been reported by many authors but there was no such issue in our study. The main problem faced by the pediatricians in the remote and rural area is that the majority of the patients are poor and they cannot afford the burden of tests and investigations so there is lack of specific evidence. The physicians are prescribing these drugs on empirical basis for a shorter period of time ranging between 3 to 5 days as majority of them(patients) come after trying multiple home, natural remedies. In such cases if the physician does not prescribe the appropriate antibiotic agent there is chance to get the infection complicated that will further put an extra burden on these poor people. They seldom visit the same physician again if left with a prescription without an appropriate antibiotic agent so it is not an excuse for prescribing irrational antibiotics but there is a dire need to educate the communities both a rural as well urban side. Similarly, rational use of antibiotics should be promoted in the pediatric and family physician communities. It well not only reduce the financial burden from patients but infact it will also reduce the increasing trend of antibiotic resistance.

Conclusion:

Pharyngitis was the most common upper respiratory infection followed by tonsillitis and otitis media all responded well to Cefixime, Cephalexin, Amoxicillin and clavulanic acid combination, azithromycin and Clarithromycin.

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