Original Article

Retrospective Epidemiological Assessment of Pediatric Acute Bronchitis at Ibn Al-Atheer Teaching Hospital, Mosul (2024)

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Abstract

Background and objective: Acute bronchitis (AB), also known as lobular pneumonia, is a common pediatric illness . The main clinical symptoms of AB include "fever, headache, cough, asthma, dyspnea, and general malaise". The objective of the study to identify the prevalence of acute bronchitis among children in Mosul City . **Materials and methods:** A retrospective study of the Ibn Al-Atheer Teaching Hospital's Statistics Center's acute bronchitis patient records was conducted. Data were collected retrospectively from the Ibn Al-Atheer Teaching Hospital in Mosul, using records for children with acute bronchitis. From January 12, 2025, to April 30, 2025, the study was conducted. The information was collected in 2025 between February 2 and February 27. Only data from 2024 was gathered, and it was broken down by month for every month of the year. Additionally, it was gathered by age and gender .SPSS version 27 was used to enter and analyze the data. **Results:** According to this study, the hospital's most common acute bronchitis patients are children between the ages of 1-4 years ,it formed a ratio (٣٧.58%). Males exhibit a higher incidence than females across almost all age groups, and at a rate (54.87%). **Conclusions:** The study concluded that the showed that acute bronchitis was diagnosed in more boys than girls. Children under one year old were more likely than any other age group to have acute bronchitis.

Key words: Retrospective, Assessment, Acute bronchitis, Children, Epidemiology.

Introduction

Viral infections, such as those brought on by the respiratory syncytial virus (RSV), rhinovirus, influenza, are the primary cause of childhood acute bronchitis and bronchiolitis (CABs), which cause inflammation and swelling of the bronchi and bronchioles, respectively. Youngsters are more susceptible to contracting the infection and may experience further difficulties. Seasonality is prevalent in CAB events, which are linked to *changes* in the surrounding weather.[1] Acute bronchitis (AB), also known as lobular pneumonia, is a common pediatric illness. [2] The main clinical symptoms of AB include "fever, headache, cough, asthma, dyspnea, and general malaise". 40% of all infections linked to healthcare in pediatric long-term care institutions are caused by this disease, which has a high incidence and complex pathogenic variables.[3] Children's conditions may alter quickly because they have a weaker immunity than adults. The children's quality of life may be severely impacted if treatment is delayed since it can result in a number of problems, including emphysema, chronic bronchitis, and chronic obstructive lung disease.[4]

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For children under the age of three, acute bronchiolitis is one of the most common reasons for hospital stays and ED visits. The only known treatment for bronchiolitis is supportive care, which involves making sure you're getting enough oxygen and water. The goal of continuous positive airway pressure (CPAP) is to expand the peripheral airways of the lungs so that bronchiolitis patients' enlarged lungs can be deflated. Increased airway pressure also prevents poorly maintained peripheral small airways from collapsing during expiration. Children with acute bronchiolitis benefit from CPAP, according to observational studies. This review was updated in 2019 after it was first published in 2015.[5]The main objective of this study is to determine the incidence of acute bronchitis among children in 2024.

Material and methods

Ethical Consideration

On March 3, 2025, the College of Nursing and Ethics Review Committee at the University of Mosul approved this study (approval number ERD/NR/3450). a letter of authorization to the director of management of the study setting. The study was carried out in accordance with the ethical principles outlined in the 1964 Declaration of Helsinki.

Study design and setting

A retrospective analysis of acute bronchitis patient records from the Statistics Center at Ibn Al-Atheer Teaching Hospital was carried out. The Ibn Al-Atheer Hospital's Statistics Center was situated on the city's eastern side. Ibn Al-Atheer Hospital is located in the left bank of Mosul and is one of the hospitals specializing in pediatric care.

Study participants and sampling

From the data in the Ibn Al-Atheer Hospital Statistics Center, all pediatric cases diagnosed with acute bronchitis during 2024 were included. Records for children with acute bronchitis that were available at the Ibn Al-Atheer Teaching Hospital in Mosul, on the left coast, were used to gather retrospective data.

Data collection tool and technique

The information was gathered at Ibn Al-Atheer Hospital's Statistics Center. The study began on January 12, 2025, and ended on April 30, 2025. The data was gathered between February 2 and February 27, 2025. Data collection was limited to the year 2024 only. All records found inside the hospital lobbies were reviewed for the year 2024 as it is a retrospective study and was distributed by month for all months of the year. It was also collected according to gender (male and female), and by age. It was divided into four age groups: less than one year, from one to four years, from five to nine years, and finally from ten years and over.

Statistical analysis method

SPSS version 27 was utilized for data entry and analysis. Descriptive and inferential statistics were used in the statistical analysis. A significance threshold of $P \leq 0.05$ was established.

Results

Table 1 The number of children with acute bronchitis, both male and female, by age group throughout the year is displayed in this table. Here's how it's distributed: In every age group, both males and females, the number of children diagnosed with acute bronchitis was higher in males than in females, and the number of people infected with acute bronchitis during the months of the year. Figure (1) shows the prevalence of bronchitis among children aged (1-4) years. The highest prevalence rate, which amounted to approximately (1939) cases, was among children, who are more susceptible to acute bronchial infections due to catching a cold, especially in winter. Table (2) This table shows the highest numbers of children with acute bronchitis, with the highest incidence rates in January, February, November and December This is because the climate of Nineveh Governorate tends to be very cold during the months mentioned above, which increases the possibility of children contracting acute bronchitis, The incidence of acute bronchitis was highest in the following months: January, February, November, and December. Figure (2) shows the distribution of the percentage of infections by month for the year 2024, with the highest percentage being in November and

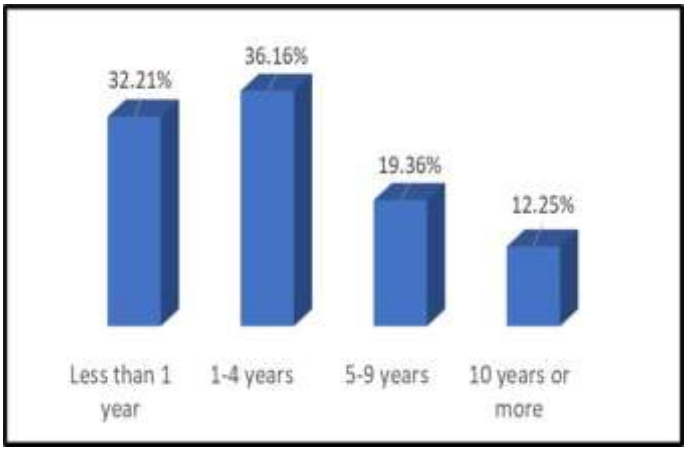
February, with these two months accounting for more than 22%.

Table 1: Incidence of acute bronchitis in 2024 at Ibn-Atheer Teaching Hospital

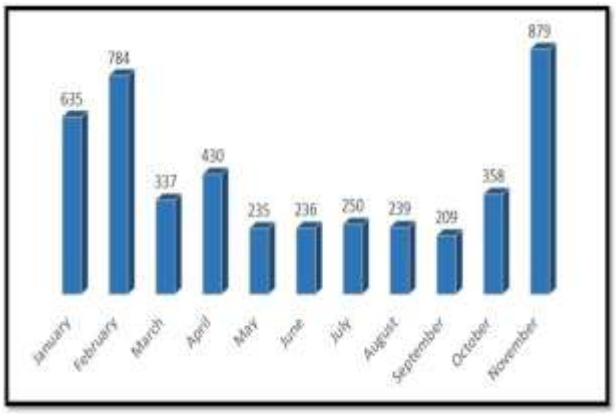
Months of the year	Less than 1 years		1-4 years		5-9 years		10 years or more	
Months	Male	Female	Male	Female	Male	Female	Male	Female
January	41	53	145	129	86	74	49	58
February	362	210	100	72	21	12	4	3
March	22	32	50	48	50	36	51	48
April	45	52	88	61	56	50	41	37
May	30	24	71	46	27	16	12	9
June	49	29	36	35	28	20	23	16
July	64	50	52	33	22	14	8	7
August	78	34	62	33	8	13	6	5
September	64	35	49	29	9	10	7	6
October	73	45	78	63	42	35	21	28
November	98	64	210	157	133	97	65	55
December	94	79	169	123	92	87	47	51
Total	1020	707	1110	829	574	464	334	323

Table 2: Children's numbers with acute bronchitis according to Months

Months of the year	Less than 1 years	1-4 years	5-9 years	10 years or more	Total
January	94	274	160	107	635
February	572	172	33	7	784
March	54	98	86	99	337
April	97	149	106	78	430
May	54	117	43	21	235
June	78	71	48	39	236
July	114	85	36	15	250
August	112	95	21	11	239
September	99	78	19	13	209
October	118	141	77	49	385
November	162	367	230	120	879
December	173	274	160	107	714
Total all	5333				



Figure(1) Acute bronchitis prevalence in children by age



Figure(2) Month-by-month breakdown of children with acute bronchitis

Discussion

The epidemiological data in Table 1 shows the incidence of acute bronchitis cases at Ibn-atheer Teaching Hospital by age and sex during 2024. Children under the age of five have the highest number of reported cases (summed across all age groups and gender), especially in the 1–4 year age group. This is consistent with the age group's known susceptibility because of their immature immune systems and high exposure to respiratory pathogens in places like daycare centers. Age-wise, male children aged 1–4 years had the highest incidence of acute bronchitis (1110 cases), followed by female children in the same age range (829 cases). According to research like.[6,7],which highlight a decline in acute respiratory infections (ARIs) with age due to improved immunity and lung development, the burden progressively decreased with age. Males had higher incidence rates than females in almost every age group. According to [8-11] biological factors like boys' narrower airways or gender-based differences in exposure and health-seeking behavior may be the cause of this male predominance, which is a common trend in pediatric respiratory illness. The prevalence of bronchitis in children ages 1-4 is depicted in Figure 1. Children, who are more prone to acute bronchial infections from colds, particularly during the winter, had the highest prevalence rate, which came to about 1939 cases. However, the colder months January, November, and December in particular saw a notable increase in cases. For example, in the 1–4 year age group, there were 210 male and 157 female cases in November alone. Increased indoor crowding increases exposure, and cold weather

promotes viral survival and transmission.[12]The necessity of taking extra precautions during the winter months is supported by this seasonal trend. In accordance with the seasonal pattern of viral respiratory infections, the lowest incidences were noted during the spring and summer months .[13] According to Table 2, there were 5,333 pediatric cases of acute bronchitis overall during the year, with significant monthly and age-based variation. November had the highest monthly incidence (879 cases), while September had the lowest (209 cases). This is consistent with the anticipated seasonal pattern of respiratory illnesses, which, as a result of behavioral and environmental factors, tend to increase during the colder months. However, children between the ages of 1 and 4 had the highest overall incidence, making up a sizable percentage of monthly cases, particularly in January (274), November (367), and December (274). Infants are especially susceptible to acute bronchitis, as evidenced by the consistently high numbers in the <1 year group, particularly in February (572) and December (173).In older children (≥10 years), where case numbers were typically low (e.g., 7 cases in February, 11 in August), the incidence significantly decreased. This is in line with the immune system's maturation and decreased exposure to sources of communal infection (like daycare or the early school years). Young children, especially infants and preschoolers, are disproportionately affected by acute respiratory infections because of their immature immune systems, smaller airways, and higher viral exposure.[14,15]The distribution of the infection percentage by month for 2024 is displayed in Figure (2). November and February have the highest percentage, making up over 22% of the total. [16] In a study conducted in late 2022 in Iraq, our same study proved that changes at the beginning of winter had the highest prevalence rate among a sample of children with acute bronchitis, amounting to about 30%, as winter is at the peak of coldness, with temperatures reaching negative temperatures.

Strength and limitations

One of the strengths that prompted the researchers to conduct this type of study was that the Nineveh Health Directorate, affiliated with the Iraqi Ministry of Health, was a major source of support and assistance in providing the necessary data for the primary study. However, the limitations facing the researchers were that some centers and hospitals did not document all cases of children suffering from acute bronchitis, as some cases were discharged on the same day and were not fully and accurately documented.

Conclusion

According to the study's findings, more boys than girls were diagnosed with acute bronchitis. The months of January, February, November, and December had the highest rates of acute bronchitis. Acute bronchitis was more common in children under one year old than in any other age group, and In Mosul, the disease has a comparatively high incidence rate that rises with the seasons.

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Conflicts of Interest

No conflicts of interest

References

1. Nichols GL, Gillingham EL, Macintyre HL, Vardoulakis S, Hajat S, Sarran CE, Amankwaah D, Phalkey R. Coronavirus seasonality, respiratory infections and weather. BMC Infectious Diseases. 2021 Oct 26;21(1):1101.

2. Cui X, Liang L, Geng H, Liu Y, Xi J, Wang J, Ching TB, Bee EG, Chai Y, Wu S, Jin D. Efficacy, safety and mechanism of jinzhen oral liquid in the treatment of acute bronchitis in children: a randomized, double-blind, multicenter clinical trial protocol. Frontiers in Pharmacology. 2022 Jul 1;13:948236.

3. Rahman HH, Niemann D, Munson-McGee SH. Association between asthma, chronic bronchitis, emphysema, chronic obstructive pulmonary

disease, and lung cancer in the US population. Environmental Science and Pollution Research. 2023 Feb;30(8):20147-58.

4. Ghazaly M, Nadel S. Characteristics of children admitted to intensive care with acute bronchiolitis. European Journal of Pediatrics. 2018 Jun;177(6):913-20.

5. Luo G, Stone BL, Nkoy FL, He S, Johnson MD. Predicting appropriate hospital admission of emergency department patients with bronchiolitis: secondary analysis. JMIR medical informatics. 2019 Jan 22;7(1):e12591.

6. Ghosh TS, Shanahan F, O'Toole PW. The gut microbiome as a modulator of healthy ageing. Nature Reviews Gastroenterology & Hepatology. 2022 Sep;19(9):565-84.

7. Ayed AY, Younis NM, Ahmed MM. Comparison of infection severity of vaccinated and unvaccinated health workers with Corona Virus: A cohort study. Journal of Education and Health Promotion. 2023 Sep 1(1):336.

8. Esposito K, Chiodini P, Capuano A, Bellastella G, Maiorino MI, Rafaniello C, Panagiotakos DB, Giugliano D. Colorectal cancer association with metabolic syndrome and its components: a systematic review with meta-analysis. Endocrine. 2013 Dec;44(3):634-47.

9. Younis NM. Epidemiology of Hepatitis B-virus in Nineveh province: Retrospective Study. Int J Membrane Sci Technol. 2023 Jul 2;10(2):1440-4.

10. Bura'a LN, Younis NM. An Interventional Program on Nurses Knowledge and Practice towards Phototherapy in Neonatal Care Units. Int J Membrane Sci Technol. 2023 Jul 2;10(2):1428-32.

11. Younis NM. Prevalence of Electronic Hookah and Risk Factors among University Students in Mosul City/Iraq. Int J Membrane Sci Tech. 2023 Jul 2;10(2):1422-7.

12. Moriyama M, Hugentobler WJ, Iwasaki A. Seasonality of respiratory viral infections. Annual review of virology. 2020 Sep 29;7(1):83-101.

13. Xu B, Wang J, Li Z, Xu C, Liao Y, Hu M, Yang J, Lai S, Wang L, Yang W. Seasonal association between viral causes of hospitalised acute lower respiratory infections and meteorological factors in China: a retrospective study. The Lancet Planetary Health. 2021 Mar 1;5(3):e154-63.

14. Alshahwany MA, Kachachi MS, Jawhar NM. Immunohistochemical expression of PD-L1 and EBV in Hodgkin's Lymphoma. Annals of the College of Medicine Mosul. 2024 Jun 1;46(1):6-0.

15. Al-Youzbakee ZM, Mohammad KO. Silver Nanoparticle Impact as Antibacterial and Antibiofilm Agent Against MDR K. pneumonaie in Mosul City. Ann Coll Med Mosul December. 2024;46(2):159-69.

16. Khudhair ME, Hameed IH, Mekhlef AK. A Prospective and Retrospective Study of Acute Bronchitis in Hillah City-Iraq. Research Journal of Pharmacy and Technology. 2017;10(11):3839-44.