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Childhood Pneumonia in Sokoto

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Summary

Ibrahim M, Ukohah S, Ko'iki HB. Childhood Pneumonia in Sokoto. *Nigerian Journal of Paediatrics* 1996; 23: 91. A retrospective study of the features of pneumonia in 415 patients, aged between 14 days and 12 years, was undertaken over a period of 12 months at Usman Danfodiyo University Teaching Hospital (UDUTH), Sokoto. Of the 415 patients, 70.6 percent had pneumonia alone, while 29.4 percent had pneumonia and one or more associated conditions, with measles being the commonest associated condition. Infants comprised 54.7 percent of all the cases and 38.3 percent were aged between one year and five years. Seasonal variation was observed with 50.6 percent of the cases occurring during the four rainy months (June to September). The case fatality rate was 10.4 percent and the most common complication was febrile convulsion which occurred in 7.3 percent of the cases. Pleural effusion and heart failure were complications in five and two cases, respectively. The need for sustained immunization against measles is strongly emphasized in order to reduce the incidence of pneumonia in our community.

Introduction

IN Nigeria, pneumonia is one of the commonest causes of morbidity and mortality in infancy and childhood.[1-4] Studies on pneumonia in some parts of the country and elsewhere have revealed seasonal variations in the incidence[2,5,6] which are often related to the frequency of other respiratory ailments. Overcrowding, domestic use of smoke-generating firewood and malnutrition have contributed to the incidence of pneumonia in childhood, especially in the lower socioeconomic classes.[2,7] The aim of the present retrospective study carried out at Usman Danfodiyo University Teaching Hospital (UDUTH) Sokoto, was to analyse the

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pattern, clinical features, management and complications of pneumonia as seen among children admitted to the Department of Paediatrics, UDUTH.

Patients and Methods

The case notes of all the children admitted to the Children's Emergency Unit and Children's ward of UDUTH, over a 12-month period (January 1 1991 to December 31, 1991), were retrieved and those cases with pneumonia were included in the study. The diagnosis of pneumonia was made on clinical and/or radiological grounds. Additional information extracted from the case notes included age and sex of the patients, duration of illness before admission, duration of hospitalization and outcome of the disease. No autopsy reports were available as this procedure is usually not performed in Sokoto because of religious and cultural beliefs.

Results

During the 12-month period, 1168 patients were admitted and of these, 454 (38.9 percent) had pneumonia alone, or pneumonia associated with other diseases. Of the 454 admissions, 415 case notes were available for the analysis. There were 259 males and 156 females, (male:female ratio of 1.66:1). The patients were aged between 14 days and 12 years (Table I) and 227 (54.7 percent) of these were infants, while 355 cases (85.5 percent) were aged three years and below. The monthly distribution of the 415 cases revealed peak incidence during the rainy months of June to September. Two hundred and ten (50.6 percent) of the cases occurred during this four-month period. There were 16 (3.9 percent) cases admitted in November which is usually the beginning of the harmattan season. The commonest presenting symptoms were fever, cough, breathlessness and vomiting observed in 384 (92.5 percent), 323 (77.8 percent), 291 (70.1 percent) and 259 (62.4 percent) of cases, respectively (Table II). The main clinical signs were tachypnoea in 394 (95 percent), tachycardia in 381 (92 percent), crepitations in 354 (85.3 percent) and dyspnoea in 291 (70 percent), respectively. Other clinical features were dehydration in 187 (45 percent), hepatomegaly in 162 (39 percent) and bronchial breath sounds in 91 (22.0 percent) of the cases. A clinical diagnosis of bronchopneumonia was made in 324 cases (78 percent) and lobar pneumonia in 91 cases (22 percent). Of the 415 patients, 293 (70.6

Table I

Age Distribution in 415 Patients with Pneumonia

Age (months)	*Number of Patients*	*Percent of Total*
0 - 12	227	54.7
13 - 24	88	21.2
25 - 36	40	9.6
37 - 48	12	2.9
49 - 60	19	4.6
61 - 72	8	1.9
73 - 84	4	1.0
85 - 96	7	1.6
97 - 108	2	0.5
109 - 120	4	1.0
121 - 132	2	0.5
133 - 144	2	0.5
Total	415	100.0

Table II

Clinical Features in 415 Patients with Pneumonia

Feature	*Number of Patients*	*Percent of Total*
Symptoms		
Fever	384	92.5
Cough	323	77.8
Breathlessness	291	70.1
Vomiting	259	62.4
Convulsions	33	8.0
Signs		
Tachypnoea	394	94.9
Tachycardia	381	91.8
Crepitations	354	85.3
Dyspnoea	291	70.1
Dehydration	187	45.0
Hepatomegaly	162	39.0
Bronchial breath sounds	91	21.9

Table III

Distribution of Associated Conditions in 122 Patients with Pneumonia

Condition	*Number of Patients*	*Percent of Total*
Measles	44	36.1
Protein energy malnutrition	25	20.5
Aspiration	13	10.7
Sickle-cell disease	12	9.8
Anaemia	11	9.0
Congenital heart disease	7	5.7
Upper respiratory tract infection	3	2.5
Meningitis	3	2.5
Septicaemia	2	1.6
Typhoid	2	1.6
Total	122	100.0

percent) had pneumonia alone, while 122 (29.4 percent) had pneumonia and one or more associated conditions (Table III), the commonest condition being measles that occurred in 44 (36.1 percent) of the cases. Chest radiographs were available in 106 (25.5 percent) of the 415 patients. In 74 (69.8 percent) of the 106 chest radiographs, there was patchy consolidation, while lobar consolidation was observed in 17 (16 percent) radiographs. Other radiological abnormalities included pleural effusion in five cases (4.7 percent), hilar gland enlargement alone in four cases (3.8 percent) and cardiac enlargement in four (3 8 percent).

Haematological investigations were available in 350 cases and these revealed packed red cell volume (PCV) ranging between 12 and 49 percent. Haemoglobin (Hb) concentration ranged from 4.1 to 16.3g per dl and 107 patients had haemoglobin below 8.5g per dl, while the Hb was below 5g per dl in 16 patients. Nine of these patients required blood transfusion. Total leucocyte count in 180 patients ranged from 6.2 to 27.1 x 10^9/L. In 120 cases, there were leucocytosis with neutrophilia, toxic granulations and a left shift. The haemoglobin genotype was SS in 12 patients.

Common complications that occurred included febrile convulsions in 33 patients, pleural effusion in five cases and heart failure in two patients. Drug treatment depended on the age of the patient at presentation. Patients under the age of three months were treated with ampicillin and gentamycin, or intravenous (i.v.) ampicillin and cloxacillin during the first 48 hours. Patients aged between three and

eighteen months, were treated with i.v. crystalline penicillin; alternative treatment was i.v. ampicillin, or chloramphenicol. Children above the age of 18 months were started on i.v. crystalline penicillin six hourly during the first 48 hours. In malnourished patients or in those showing no improvement or suspected to have staphylococcal infection, i.v. ampicillin and cloxacillin was administered. The duration of antibiotic therapy ranged between five and 14 days, while the duration of hospitalization ranged between three and 22 days. Nine (2.2 percent) of the 415 patients were discharged against medical advice. Forty-three (10.4 percent) of the 415 patients died and 20 (4.8 percent) of these deaths occurred in patients with associated conditions.

Discussion

Pneumonia is one of the leading causes of childhood mortality in Nigeria[1-4,8] and other developing countries. [9] About 85 percent of all the cases of pneumonia in our series were aged three years and below. This age period coincides with that of highest susceptibility to infections due to a combination of immature host immune system and constant contact with numerous viral and bacterial agents in the environment.[10,11] A seasonal increase in the prevalence of pneumonia during the rainy season was noted and this observation has been reported by other workers in Nigeria.[3,6] The temperature invariably falls after a heavy rain and families usually remain indoors during and immediately after such rainfalls. This would therefore account for indoor overcrowding during the rainy season and thus lead to increased chances of spread of droplet infections.

Major features in the present study included fever, cough and tachypnoea and were similar to those previously reported.[1,3,12] Heart failure was recorded in two patients, both of whom survived because of early diagnosis and treatment. Mortality rate in patients in whom heart failure complicated bronchopneumonia was 36 percent in the series reported by Bondi and Jaiyesimi.[13] Haematological changes consistent with acute bacterial infections, characterized by leucocytosis, neutrophilia and a left shift with toxic granulations occurred in the present series; these changes would support the diagnosis of bacterial pneumonia in many of the cases and thus justify the use of antibiotics.[3,7] All our newly admitted patients were given parenteral antibiotics, as this was the only way of ensuring drug compliance during the acute and critical first 48 hours of admission. The mean duration of hospitalization was between seven and fourteen days and this was often dependent on the ability of parents to purchase the prescribed drugs. The mortality rate of 10.4 percent in the present study was comparable to previous reports from the south western part of the country.[1,3] It is pertinent to emphasize that nearly 50 percent of the deaths occurred in patients with pneumonia secondary to, or associated with other conditions. For this reason, it is recommended that intensive nursing care and close monitoring of patients with pneumonia and associated conditions such as measles, sickle-cell disease, malnutrition or anaemia should be undertaken during the first 48 hours of admission.

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