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MORTALITY AND MORBIDITY RATE DUE TO SEVERE PNEUMONIA IN CHILDREN 2-59 MONTHS FOR ONE YEAR IN MIRWAIS REGIONAL HOSPITAL PEDIATRIC DEPARTMENT KANDAHAR AFGHANISTAN

Children's morbidity and mortality from respiratory disorders continue to be a serious problem, particularly for children under the age of five. Conduct research on demographic and clinical aspects and prognosis of severe pneumonia in children aged 2 months to 5 years who were hospitalized to the pediatric unit of the Mirwais Regional Hospital in Kandahar, Afghanistan.

In the pediatric ward of the Mirwais Regional Hospital in Kandahar, Afghanistan, a cross-sectional research was conducted. Information was gathered, compiled, and analyzed from the medical records of each case at the hospital for all patients with severe pneumonia who were admitted into the pediatric ward at MRH in the period between November 10, 2018 and November 9, 2019. The patients' ages ranged from 2 months to 5 years. The data was then analyzed using SPSS version 22.0. A multivariate logistic regression model was used to identify characteristics related to pneumonia mortality.

There were 462 instances of severe pneumonia, and 256 (55.4%) of those cases were in male and 206 (44.6%) in female.

The total mortality rate was 57 (12.75) percent, while 390 patients (87.24) were successfully treated. Regarding residence, 260 (62.3%) were rural residents, while 202 (43.7%) were urban. During the winter and fall seasons, there were more cases admitted. 380 patients (82.1%) fell within the 2- to 12-month age range. Out of 462 patients, 199 (43%) were malnourished, and of them, 132 (28.57%) were severely malnourished (P-value: 0.0001 OR=4.73). According to their age, about 103 (22.2%) patients received all recommended vaccinations, 51 (11%) patients were not vaccinated, and 308 (66.5) patients received some vaccinations. 167 (36.1%) patients were fully breastfed.

Keywords: Severe pneumonia, children, Kandahar, mortality.

Introduction

Bacterial pneumonia is the greatest cause of mortality (23% of deaths) for children between the ages of 27 days and five years, according to estimates from a research on the worldwide disease burden [1]. According to estimates there are 150 million instances of pediatric pneumonia each year, 95% of which occur in underdeveloped countries [2]. Compared to industrialized countries, where the rate is just 4.3%, pneumonia kills 20% more children under five each year in underdeveloped countries [3]. In 2013, 0.9 million children died from pneumonia, and more than 95% of the fatalities occurred in low- and middle-income countries [4]. Pneumonia, one of the most dangerous and difficult conditions were the three categories into which the WHO previously separated CAP.

Only rapid breathing was classified as pneumonia, rapid breathing and tightening of the chest as severe pneumonia, and rapid breathing and tightening of the chest combined with any of the danger signs like difficulty swallowing, drowsiness or altered level of consciousness, convulsion, or cyanosis was classified as extremely serious illness. In order to distinguish between mild pneumonia and severe pneumonia,

WHO [2014] CAP in children under the age of five was recently separated into two groups. Rapid breathing with or without chest in-drawing is now classed as pneumonia, and fast breathing with any of the warning signs is classified as severe pneumonia.

Material and Methods

This study, which was conducted on children aged 2 months to 5 years who had severe pneumonia at the pediatric department of Mirwais Regional Hospital in Kandahar, Afghanistan, in the period between November 10, 2018 – November 9, 2019, was hospital-based, prospective, and record-based. Children who had a clinical diagnosis of severe pneumonia were included in the trial, regardless of their gender or ethnicity. The WHO 2014 criteria for serious pneumonia served as the foundation for the solely clinical diagnosis of the condition.

MRH is a governmental referral hospital for children which is also supported by ICRC. The hospital treats patients who are referred from other Afghan provinces as well as residents of Kandahar and the surrounding area. The medications, the ward fees, and the consultation are all free. The hospital contains 600 beds throughout its several departments.

Data were collected and entered into already prepared questioners prior to the start of the study with approval from the child's mother or a close relative verbally providing consent, the hospital's chairman, and the ethics committee. All children with a clinical diagnosis of severe pneumonia between the ages of 2 months and 5 years were included in the study. From the medical records, specifics on the patient's demographics, socioeconomic status, test results, breastfeeding, nutritional status, and problems were gathered and placed into a questionnaire before being analyzed.

Statistical analysis: The percentages for the various parameters under study were obtained using SPSS version 22.0 for the statistical analysis.

To identify variables associated with pneumonia mortality, a multivariate logistic regression model was utilized.

Inclusion criteria: Patients from two months to five years old with serious pneumonia.

According to WHO guidelines the diagnosis of severe and very severe pneumonia was made. [5].

Exclusion criteria: Children below two-months of age and above five-years old, with CHD, asthma, thalassemia and other syndrome anomalies presenting as pneumonia, were excluded.

Results

462 kids in all were treated throughout the research period, which ran from November 10, 2018 to November 9, 2019 according to the demographic profile. 206 women and 256 men.

Their mean age was $9.227 \pm 7.75SD$, from 2 months to 59 months. It indicates the population's demographic characteristics under study. Age was five months on average (range 2-59 months). Male

patients made up 256 of the patients, or 55.4%. In the first quarter we see an increase in the number of cases hospitalized. First quarter (January, February and March) and also quarter 4 (October, November and December). 380 (82.1%) patients were in the age group of 2- 12 month. Ut of 462 patients (43%) included in the study were malnourished out of malnourished children 132(28.57%) had severe malnutrition P-value (0.0001 OR=4.73). About 103 (22.2%) patients were completely immunized according to their age, 51(11%) didn't take any vaccination and the remaining 308(66.5) were partially vaccinated. 167 (36.1%) patients were exclusively breastfed. Factors associated with mortality of children presented with severe pneumonia are tested through running multivariate logistic regression model for 447 observations after excluding 15 who left the hospital before observing the outcome (cure or death). 390 children (84%) have cured and successfully discharged from Mirwais Regional Hospital, 57 children (12.75%) have died while 15 children (3%) have left the hospital against medical advice. Male to female ratio (61.4:38.59%). 177 (38.3%) children had history of exposure to smoking. Table1 shows factors associated with pneumonia mortality clinical feature which were differently statistically significant in severe pneumonia children. Mortality was higher among the patients who had DLH (Days live in hospital) hospital less than 72 hours of onset of illness ($p=0.0001$).it mean those were in hospital for ≤ 3 days died soon. Also, children with cyanosis, convulsion, no conscious, fever, (p value= 0.0001) wheezing (p value = 0.014), those who need for O2 (p value = 0.03) died more than who doesn't need for oxygen, 288(62.3%) X-ray not done and for remain 174(37.7%) x-ray was done for them (Table2).

Table 1 – Descriptive Statistics. Of severe pneumonia children

Characteristic	Descriptive Statistics					95% CI	
	N	Minimum	Maximum	Mean	Std. Deviation		
Age	462	2	54	9.22	7.775	8.46	9.96
Weight per kg	462	2	18	6.11	2.074	5.92	6.30
Height per cm	462	48	102	65.59	8.358	64.76	66.34
Fever	462	35	42	37.79	.837	37.71	37.86
Duration of breast feeding in months	462	0	24	4.45	4.973	3.99	4.94
Number of smokers at home	462	0	4	.52	.784	.44	.59
Heart Rate per minute	462	108	250	147.71	17.755	145.98	149.24
DLH	461	1	19	5.74	3.205	5.49	6.07
Respiratory Rate per minute	462	50	104	68.16	8.968	67.24	68.96

Table 2 – Tofu his table show Factors associated with severe pneumonia mortality

Multivariate Logistic Regression Model for factors associated with pneumonia mortality								
	B	S.E.	Wald	Df	P-value	Odd Ratio (OR)	95% C.I. for OR	
							Lower	Upper
Cyanosis	1.604	560	8.195	1	.004	4.974	1.7	14.9
Consciousness	1.944	591	10.815	1	.001	6.988	2.2	22.3
Refuse to feed	1.723	660	6.821	1	.009	5.604	1.5	20.4
X-rays done	-1.858	650	8.179	1	.004	156	0.04	0.6
Admission days			45.250	2	.000			
4-7 days	-3.622	591	37.514	1	.000	.027	0.02	0.09
≥7 days	-6.200	1.160	28.573	1	.000	.002	0.000	0.020
Mother age			9.841	2	.007			
30-40 years	-1.203	1.119	1.156	1	.282	300	0.03	2.7
>40 Years	.614	1.099	312	1	.577	1.847	0.2	15.9
Antibiotics given at hospital			21.166	7	.004			

Discussion

Among our analysis, 380 incidences of severe pneumonia, or 82.4% of all cases, were recorded in children between the ages of two and twelve months. Which has same result with the done in rural western In Nepal, pneumonia was also more common in infants under one-year old than in children aged one to five [6]. In our study, the male to female ratio was 1.24:1.

Similar findings in a comparable study in Karnataka, India, found that 62.6% of the participants were men and 37.4% were women (ratio 1.67:1). In the under-five age group, more male patients were hospitalized for treatment of pneumonia. This may be the result of our society's preference for treating male children [7]. During the first quarter, more cases were admitted. (months of January, February and March) and also quarter 4 (October, November and December). In winter and fall which rainy and dry season respectively. Which is same result with According to WHO data from 2008, pneumonia cases in tropical climates peaked during the rainy season. According to seasonal distribution, our analysis showed a similar trend [8]. in the present study Out of 462 patient the patients 199 (43%) included in the study had malnutrition out of malnutrition children 132(28.57%) had severe malnutrition. and a study from Kolkata found a similar conclusion: malnutrition was substantially linked to the development of acute respiratory infections (ARI) in children under five [9]. In our study, about 103 (22.2%) patients were completely immunized regarding to their age, 51(11%) didn't take any vaccination and the remaining 308(66.5) were partially vaccinated This discrepancy could be caused by issues with several aspects of vaccination coverage in our study area (as per the NIS nation immunization schedule), as well as parental ignorance and pessimism. In our study, 167

(36.1%) patients were exclusively breastfed, this low rate of exclusive breastfeeding in our analyzed cases may be the result of mothers' lack of knowledge of the advantages of exclusive breastfeeding. Among survivors, the average hospital stay was 5.74±3 days. 3 days for those who did not survive. In a study from Karnataka, it was shown that the group with the most severe pneumonia required a longer hospital stay. Very severe pneumonia group children in our study had shorter hospital stays because more early fatalities occurred as a result of the illness's more serious character. [9]. In our investigation, severe pneumonia was the primary cause of 57 (12.75%) deaths overall. 9 (6.38%) from severe pneumonia and 22 (15.6%) deaths were recorded in cases of very severe pneumonia. In a 2017 study by Kumar AMK et al, it was shown that 3% of children with acute lower respiratory tract infections who were between the ages of 2 months and 5 years old died. In contrast to their research group, there may have been more cases of very severe pneumonia in our study, which may have contributed to the study's higher mortality rate. Another contributing factor can be the severity of the sickness and the delay in getting to the referral hospital (Mirwais Regional Hospital

Conclusions

Severe pneumonia was more likely to occur in infants than in adults.

Children with severe pneumonia made up the bulk of patients who died when they were admitted to the hospital more than 72 hours after the onset of their illness. Children continue to carry a significant burden for respiratory infections. If we wish to reduce the population's morbidity rate, we should pay special attention to children's respiratory diseases. It is necessary to undertake a detailed analysis of the epidemiological variables associated with morbidity

and mortality in the community in order to determine the prevalence of the illnesses and plan measures for treating them.

Limitation. It does not accurately reflect the prevalence of severe pneumonia in the general population in all of its forms and etiologies because it was a hospital-based study.

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