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Original Article

Disease Profile Among Children Admitted in a Tertiary Care Hospital

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Abstract

Background: *An understanding of epidemiological trend in hospital admissions, including diseases and death pattern, is critical for health care planning, appropriate resource allocation & improving existing services facilities. To evaluate the disease and death pattern of children admitted in the Department of Child Health, Bangubandhu Memorial Hospital. Chattogram.*

Materials and methods: *This was a retrospective study. The case records of all patients admitted in the Department of Child Health from Jan 1, 2015 to Dec 31, 2016 were analyzed.*

Results: *Total 3560 children were admitted during this study period. All the patients were distributed into three age groups. Infant, under five and more than five age groups constitute 35%, 33% and 32% respectively. Acute watery diarrhea (33%) bronchiolitis (21%) Bronchopneumonia (10.5%) hereditary hemolytic anemia (9%) and Enteric fever (4.3%) were the five top disease in two years of admission. Among them total 12 (0.34%) patient died. Highest case fatality rate was found in bronchopneumonia (75%). Other common causes of death include meningitis (17%) and heart failure (8.5%). Patient came from urban area was 63% and 37% came from rural area.*

Conclusion: *Admission related findings of this study will help to evaluate the disease pattern of a hospital and planning for more effective case-management strategies.*

Key words: Disease; Mortality; Bangabandhu Memorial Hospital.

INTRODUCTION

Child health in Bangladesh has faced significant challenges largely as a result of poverty, over-burdened healthcare services related to huge paediatrics populations. Pneumonia, diarrhoea, measles, malaria, malnutrition, injuries, drowning and the high number of neonatal deaths, and poor care-seeking behavior, all contribute to the high levels of child mortality[1]. But the last few years Bangladesh has made significant improvements in the child health achieved its Millennium Development Goal (MDG) 4 (To reduce child mortality). The status of child heath which is reflected by under-five, infant and neonatal mortality rate in children declined dramatically. Mortality declines are associated with improved coverage of effective interventions to prevent or treat the most important causes of child mortality and with improvements in socioeconomic conditions. Programmes to ensure high coverage of vaccine preventable diseases, treatment of diarrhoea and ARIs, implementation of IMCI and to deliver newborn health interventions, have been crucial to these reductions. Moreover, Bangladesh has been reduced disparities in under 5 mortality between urban-rural areas and across different regions of the country[2].

During the last decades, medical recordings have increased dramatically leading to more awareness of the diseases commonly affecting paediatric age groups opening a wide entrance to the prevention of possible complications and decrease its incidence. Routinely collected patient information has the potential to yield valuable information about health systems. But there have been few comprehensive analyses of paediatric admissions at hospitals.Hospital death records statistics are considered reliable and used all over the world. Moreover, evaluation of characteristics of children who dies in hospitals gives an insight into main medical illness in children and measures to overcome those .Therefore, review of such information help to draw attention to the pattern of childhood illness in the community[3]. The types of pediatric patients requiring hospitalization may be changing. Healthy children with acute illnesses are more often require hospitalization then children with common chronic conditions[4]. Analysis of admission, discharge and death in the hospital should therefore give better evaluation about the trends in hospitalization and outcomes at Paediatrics Department of Bangabandhu Memorial Hospital (BBMH) USTC which is a major referral hospital for children. Despite different limitations, the information from this type of study may be useful to formulate the guidelines of disease profile and management. This study was done to investigate trends in hospitalization and outcomes at Paediatrics Department.

MATERIALS AND METHODS

This was a retrospective observational study done at the Department of Child Health, Bangabandhu Memorial Hospital, Chattogram, Bangladesh from 1st January 2015 to 31st December 2016. All the admitted children aged >28 days to 15 years (Upper age limit for admission in pediatric ward) in the Department of Child Health, Bangabandhu Memorial Hospital over a period of 2 years, sample size was 3560.

Inclusion criteria:

i) All the admitted children aged >28 days to 15 years.

Exclusion criteria:

i) Neonatal (Up to 28 days) cases

ii) A patient who left the hospital after an admission of their own (Discharge on request or Discharge on risk bond) left the hospital unnoticed (Absconded) or was transferred to other discipline was also excluded from the study

iii) Patient without adequate clinical records were also excluded from the study.

Data was collected from hospital register, patient file records, death certificates. Data extracted from the records included total number of admissions and deaths, age, gender, month wise admission, locality and provisional diagnosis. Final diagnosis was based on the final assessment by the managing unit. It was based on the presenting clinical features, with or without the results of laboratory tests.

RESULTS

Table I : Basic data of total admission according to age, sex and locality and also outcome during the study period (n= 3560)

S.NO	DIAGNOSIS	AGE			SEX		URBAN	RURAL	OUT COME			Total
		<1yrs	1yrs-5yrs	5yrs-15 yrs	Male	Female			DISCHARGE	DORB	DEATH	
01.	Acute watery diarrhea	479	431	262	598	574	820	352	1027	145		1172
02.	Br. Pneumonia	264	63	45	176	196	158	214	344	19	09	372
03.	Bronchiolitis	345	253	145	423	320	516	227	662	81		743
04	F. Convulsion	59	63	30	78	74	125	27	130	22		152
05.	Asthma	05	17	41	32	31	43	20	60	03		63
06.	Hepatitis	03	19	34	27	29	30	26	56			56
07.	Thalassemia	15	118	183	173	143	185	131	222	94		316
08.	PTB			09	06	03	03	06	09			09
09.	VSD	02			02		02		02			02
10.	PSGN		05	23	17	11	15	13	28			28
11.	NS		28	48	33	43	36	40	73	03		76
12.	Helminthiasis		11	23	24	10	18	16	34			34
13.	Malaria			10	08	02	01	09	10			10
14.	Meningitis	38	10	04	25	27	20	32	48	02	02	52
15.	Enter Fever	20	67	76	88	75	98	65	156	07		163
16.	UTI	03	14	47	11	53	33	31	62	02		64
17.	CP	11	02	02	09	06	09	06	13	02		15
18.	PEM	03	20	19	16	26	18	24	42			42
19.	HCR		11	44	24	31	27	28	43	12		55
20.	Abdominal pain		02	11	08	05	11	02	13			13
21.	Tonsillitis		01	03	03	01	04		04			04

22.	Encephalitis	10		01	06	05	05	06	11			11
23.	CHD	05			01	04	05		05			05
24	PUD			06		06	03	03	06			06
25	Mumps		02	02	01	03	03	01	04			04
26	Constipation		01		01			01	01			01
27	Bells palsy	01		01		02	02		02			02
28	Measles			03	02	01	03		03			03
29	Down syndrome	01	01		01	01	01	01	02			02
30	Stephen Johnson syndrome			03	03		02	01	03			03
31	Viral Fever		01	02	01	02	02	01	03			03
32	Artic aria	01	07	05	07	06	10	03	13			13
33	Hemophilia			02	02			02	02			02
34	Epilepsy		05	09	06	08	08	06	14			14
35	Kerosene poisoning		01	01	01	01	02		02			02
36	Drowning			02	02		01	01	02			02
37	HF	01	01		02		01	01	01	01		02
38	Septic Arthritis			02	01	01	01	01	02			02
39	Food poisoning			08	04	04	04	04	08			08
40	Cellulitis			02	02			02	02			02
41	Heart Failure	02			02		02		01		01	02
42	William syndrome			01	01		01		01			01
43	Cervical spondylitis			01	01		01		01			01
44	Anigo edema	01				01	01		01			01
45	Anemia	01	01		02		01	01	02			02
46	Seizure Disorder	01	02		01	02	02	01	03			03
47	Gastritis			01		01		01	01			01
48	Urticaria		02	03	03	02	05		05			05
49	Hydrocephalus	01		01		02	02		02			02
50	Dengue Fever			02	02		02		02			02
51	Acute Appendicitis			01		01	01		01			01
52	Pericardial Effusion			01	01		01		01			01
53	Recurrent Wheeze		02	03	02	03	02	03	05			05
54	Hypothyroidism	01			01		01		01			01
55	Rickets			01	01		01		01			01
56	Lymphoma			01	01		01		01			01
57	Wheezy Chest	01	01		02			02	02			02
		1274	1162	1124	1845	1715	2249	1311	3155	393	12	3560

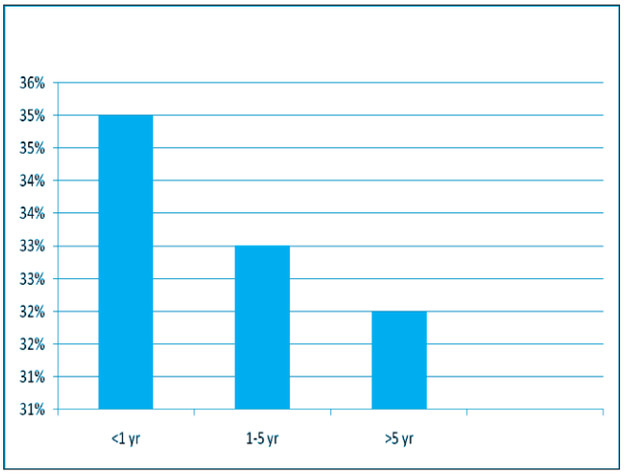

Figure 1 : Age distribution (n=3560)

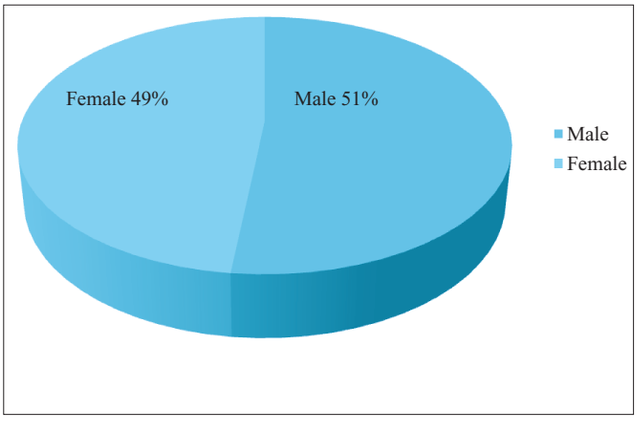

Figure 2 : Sex distribution of patients

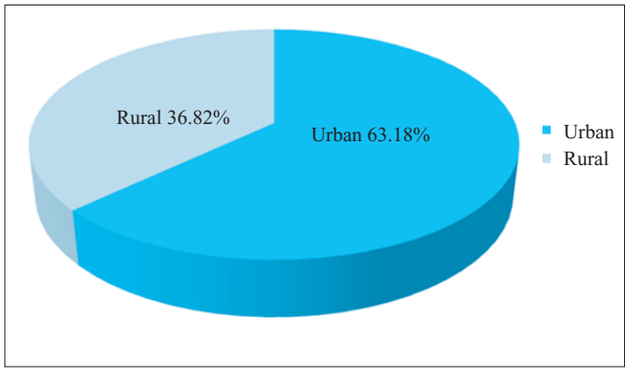

Figure 3 : Residence of patients

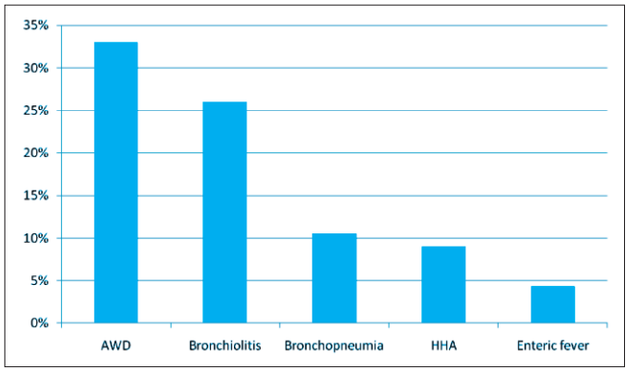

Figure 4 : Top five diseases

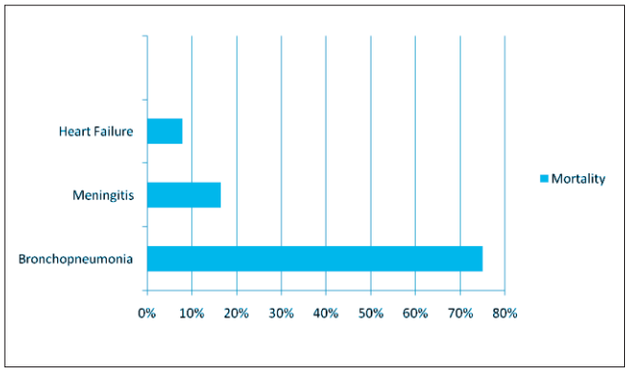

Figure 5 : Disease specific mortality

DISCUSSION

Over the two years, there were total 3,560 admissions. All the patients were distributed into three age groups. Infant, under five and more than five age groups constitute 35%, 33% and 32% respectively. In this study 68% of the total admissions were from the under-five age group.Majority of the children were under the age of 5 years which is also similar to what has been found in Port Harcourt, Benin, Ilorin and Abuja[5-8]. This could be due to the vulnerability of this age group as a result of incomplete immunity against infections.

Male female ratio of 1:0.93 was found in this study. Boys were a bit more affected (52%) than girls (48%). Male preponderance was found in other studies done in Nigeria[9,10]. This finding may reflect a gender bias in health seeking behavior regarding their children[9]. But that was not found in this study. 63% patient came from urban area and 37% came from rural area. Most probably it is due to the location of the hospital. Two-thirds (77.7%) of the total admissions were due to five common diseases like, Acute watery diarrhea (33%) Bronchiolitis (21%) Bronchopneumonia (10.5%) Hereditary Hemolytic Anemia (9%) and Enteric fever (4.3%). Majority of admissions from AWD and Respiratory illness are also the common findings in other hospitals of the country. Moreover we don't have ORT corner, so that patients came with diarrhea all of them got admitted to the hospital.Malaria, diarrhoeal disease, sepsis, pneumonia and protein energy malnutrition were the commonest diseases seen in another study. These are similar to what was observed in Port Harcourt, Benin, Owerri, Imo, Abuja, and Kenya Pneumonia, diarrhea and malaria account for 41% of annual death globally and 49% in Africa[5,6,11-14]. The bulk of childhood morbidity and mortality affect mainly children under 5 years of age[14,15]. Several studies in Africa reported infectious diseases as the leading causes of childhood death[16,17,18,19]. Hereditary Hemolytic Anemia contributed a major portion (9%) of total admissions could be due to multiple admissions of the same patients. Different studies carried out in hospitals in developing countries have revealed a fatality rate ranging from 5 to 14%[20]. In India case fatality rate is 6.2%[21]. Various mortality patterns ranging 2.6% - 5.4% have been existed in different tertiary hospitals of Bangladesh. In this study mean mortality was found 0.34% which is not consistent with those data. This result might be due to early referral provision of the moribund patient to the centers where the ICU facilities are available. Bangladesh is a malaria endemic country where total thirteen districts including Chattogram, are recognized as malaria endemic zone[22]. Therefore more malaria related admissions were expected in our admissions. Fortunately the surrounding primary and tertiary hospitals at rural areas can handle this moribund disease well, therefore they refer only the complicated cases to this tertiary level hospital, reflected by only 0.3% malarial admission. ARI account for about 20% or more than two million of deaths, making it the leading cause of deaths in children aged less than five years[20-22]. In Bangladesh, 90,000 children >1 month and <5 years of age die from pneumonia every year[23]. 75% death was found in this study which was consistent with our perspective. Globally 18% & in Bangladesh 20% of childhood death occurs from AWD[24]. But our findings relating to diarrheal deaths are less in number, which may be due to the awareness & increased use of Oral Rehydration Solution (ORS). In our study the leading causes of death, in order of frequencies, included Bronchopneumonia (75%) meningitis (17%) and heart failure (8.5%).

CONCLUSION

Findings of this study helps us to understand pediatric admission trend and death pattern of this institution,which are essential for effective case-management strategies.Preventable diseases still constitute the major cause of morbidly and mortality in our facility and children <5 years of age are commonly affected. Improvement of the social and health system may impact to reduce the incidence of these diseases and their impact on the health of children.Health education on preventive strategies such as exclusive breast feeding, provision of clean water, completing immunization, improvement in personal hygiene and environmental sanitation, prevention of malaria using insecticide-treated bed nets should be disseminated regularly by the media.

DISCLOSURE

All the authors declared no competing interest.

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