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PEDIATRIC INTENSIVE CARE UNIT;
PATTERN OF ADMISSIONS

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ABSTRACT... hik70@hotmail.com **Background:** Intensive care is predominantly concerned with the management of patients with acute life threatening conditions in a specialized unit. Children having acute neurological deterioration, respiratory distress, cardiovascular compromise, severe infections and accidental poisonings constitute the major admission to a pediatric intensive care unit. **Objective:** To document the number, disease pattern and outcome of patients admitted to Pediatric intensive care unit. **Design:** Descriptive study. **Place and Duration:** The study was conducted in the intensive care unit of department of Pediatrics, King Edward Medical University/Mayo hospital, Lahore from July 01, 2004 to June 30, 2005. **Patients and Methods:** The data of all the admitted patients was analyzed for age, sex, cause of admission and outcome. **Results:** A total of 1012 children were admitted during the study period. Among them 59.68% were male and 40.32% were female. Bronchopneumonia was the major cause of admission (29.05%) followed by septicemia (14.43%), acute bacterial meningitis (8.1%), acute watery diarrhea (6.92%), congenital heart diseases (5.14%), tetanus (3.75%) ,acute myocarditis (2.67%) and others (29.94%) including acute bronchial asthma, hepatic encephalopathy, diabetic ketoacidosis, encephalitis, tuberculous meningitis, accidental poisoning and Guillain-Barre syndrome. Out of total admissions, 64.43% were shifted to different units of the department, 4.05% discharged in satisfactory condition, 9.49% left against medical advice (LAMA) and 22.03% died. The case fatality of septicemia (65.07%) was highest. **Conclusion:** Bronchopneumonia and septicemia were the major causes of admission while case fatality was highest for septicemia in intensive care unit.

Key words: Pediatric Intensive Care Unit Admissions

INTRODUCTION

Intensive care is predominantly concerned with the management of patients with acute life threatening conditions in a specialized unit. Caring of critically ill children remains one of the most demanding and challenging aspects of the field of pediatrics[1]. Patients are admitted to a pediatric intensive care unit because they require a very high level of monitoring of vital signs and other body functions. These patients may need mechanical ventilation, invasive intravascular monitoring and frequent attention by both the nursing and medical staff[2].

Children having acute neurological deterioration, respiratory distress, cardiovascular compromise, severe infections and accidental poisonings constitute the major admission to a pediatric intensive care unit[3]. Patients may be discharged or ambulated from pediatric intensive care unit once the disease process has reversed itself and care can be provided in less intense environment[2,4].

Disease pattern in pediatric intensive care unit particularly in early age group is a sensitive indicator of the availability, utilization and effectiveness of mother and child health services in the community. Disease pattern changes between different places and time to time even at the same place[5].

We conducted a study to document the number, disease pattern and outcome of patients admitted to our pediatric intensive care unit. This may help to assist health workers and planners to pay due attention for better utilization of health care facilities because better understanding leads to better management.

PATIENTS AND METHODS

The study was carried out in the intensive care unit of department of Pediatrics, King Edward Medical University/Mayo hospital, Lahore from July 01, 2004 to June 30, 2005. This intensive care unit admits all the cases above 28 days of age requiring intensive care. Only the cases below the age of 28 days suffering from tetanus and acute watery diarrhea are admitted in this unit. These patients are shifted to other units of the department when they do not need any intensive care or are discharged with satisfactory condition.

This was descriptive study and we analyzed the admission and discharge data of the study period and age, sex, final diagnosis and outcome (discharge, shift to other units of the department, left against medical advice (LAMA) or expired) was obtained.

Statistics were analyzed according to percentages and frequency of diseases and no statistical test was applied to the results.

RESULTS

During the study period, total admissions in the pediatric intensive care unit were 1012. Total admissions in the department during the same period were about 20,386. Among them 604(59.68%) were male and 408(40.32%) were female (Table-I).

Table-I. Age and sex distribution

Age	Males n(%)	Females n(%)	Total n(%)
0-60 days	115(19.04)	64(15.69)	179(17.68)
61 days - 12 months	225(37.25)	166(40.69)	391(38.63)
13 months - 5 year	118(19.54)	90(22.08)	208(20.56)
> 5 year	146(24.17)	88(21.57)	234(23.13)
Total	604(59.68)	408(40.32)	1012

Out of total admissions, 179(17.68%) were below 60 days, 391(38.63%) were between 61 days to 12 months of age, 208(20.56%) were between 13 months to 5 year and 234(23.13%) were above 5 year of age (Table-I).

Bronchopneumonia was the major cause of admission 294(29.05%) followed by septicemia 146(14.43%), acute bacterial meningitis 82(8.1%), acute watery diarrhea 70(6.92%), congenital heart diseases 52(5.14%), tetanus 38(3.75%), acute myocarditis 27(2.67%) and others

303(29.94%) including acute bronchial asthma, hepatic encephalopathy, diabetic ketoacidosis, encephalitis, tuberculous meningitis, accidental poisoning and Guillain-Barre syndrome (Table-II).

Out of total admissions, 64.43% required further management and were shifted to different units of the department, 4.05% were discharged in satisfactory condition directly from the pediatric intensive care unit, 9.49% left against medical advice (LAMA) and 22.03% died (Table-III).

Among bronchopneumonia, 89.46% were shifted to other units of the department, 4.42% were discharged, 4.42% left against medical advice (LAMA) and 1.7% expired while among septicemia, 21.92% were shifted, 2.05% discharged, 10.96% left against medical advice (LAMA) and 65.07% expired (Table-III).

Overall mortality was 22.03% while case fatality was highest for septicemia (65.07%) followed by acute myocarditis (48.15%), tetanus (31.58%), congenital heart diseases (28.85%) and acute bacterial meningitis (25.61%) and was lowest for bronchopneumonia (1.7%) (Table-III).

Table-II. Causes of admission to pediatric intensive care unit

Disease	Males n(%)	Females n(%)	Total n(%)
Broncho-pneumonia	173(28.64)	121(29.66)	294(29.05)
Septicemia	80(13.25)	66(16.68)	146(14.43)
Acute Bacterial Meningitis	51(08.44)	31(07.60)	82(08.10)
Acute Diarrhea	37(06.13)	33(08.08)	70(06.92)
Congenital heart disease	33(05.46)	19(04.65)	52(05.14)
Tetanus	24(3.97)	14(03.43)	38(03.75)
Acute Myocarditis	18(02.98)	09(02.21)	27(02.67)
Others	188(31.13)	115(28.19)	303(29.94)
Total	604	408	1012

Table-III. Outcome of major disease

Disease	Admission n(%)	Shifted n(%)	Discharged n(%)	LAMA n (%)	Expired n(%)
Bronchopneumonia	294(29.05)	263(89.46)	13(04.42)	13(04.42)	05(01.70)
Septicemia	146(14.43)	32(21.92)	03(02.05)	16(10.96)	95(65.07)
Acute Bacterial Meningitis	82(08.10)	55(67.07)	00(00.00)	06(07.32)	21(25.61)
Acute Diarrhea	70(06.92)	52(74.28)	08(11.43)	07(10.00)	03(04.29)
Congenital heart disease	52(05.14)	27(51.92)	05(09.62)	05(09.62)	15(28.85)
Acute Myocarditis	27(02.67)	11(40.74)	00(00.00)	03(11.11)	13(48.15)
Tetanus	38(03.75)	12(31.58)	08(21.05)	06(15.79)	12(31.58)
Others	303(29.94)	194(64.03)	06(01.98)	39(12.87)	64(21.12)
Total	1012	652(64.43)	41(04.05)	96(09.49)	223(22.03)

DISCUSSION

This study showed the total number of admission to our pediatric intensive care unit was 1012. The result was comparable with the total number of admission to the

children's hospital of viginia[3] but this was high when compared to that of Karachi[6]. The male predominance at admission is consistent with other studies from Karachi and Norfolk[3, 5].

Infections remain one of the major problems in pediatric intensive care unit and are the leading cause not only of admissions but also mortality in developing countries[7]. Mortality rate was found to be high in pediatric intensive care units of South America as well[8]. In our study, infections (bronchopneumonia 29.05%, septicemia 14.43%, acute bacterial meningitis 08.10%, and acute diarrhea 06.92%) were the major cause of admission as well as mortality.

Almost 64% children were shifted after when they were not in need of intensive care and almost 5% were directly discharged from pediatric intensive care unit with satisfactory condition. On the other hand, almost 10% of the parents left against medical advice (LAMA) which is an alarming figure requiring attention by the health care providers. The possible causes were religious belief (that death was imminent), financial and domestic reasons and lack of confidence on the level of care provided to these children.

CONCLUSION

Bronchopneumonia and septicemia were the major causes of admission in our study while septicemia was the major cause of death. Therefore, reduction in acute respiratory illness and the condition leading to septicemia should be the part of overall preventive strategy towards reducing morbidity and mortality in children. Reduction in morbidity and mortality can be achieved by proper and effective intervention by community mobilization and participation.

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