

## **MORTALITY PATTERN AMONG HOSPITALIZED CHILDREN IN A TERTIARY CARE HOSPITAL OF WESTERN MAHARASHTRA**

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### **ABSTRACT**

#### **Introduction**

Children mortality is one of very important indicators which reflect country's development. In country like India, causes of children mortality are often poorly documented in most of the hospitals. The present study was aimed at finding the causes of mortality among children admitted in paediatric unit during last one year and provides epidemiological information related to mortality patterns.

#### **Materials & Methods**

A retrospective analysis was done with the medical records of Childrens died in the Peadiatric Department of Government Medical College and Hospital, Miraj, from 1<sup>st</sup> January to 31<sup>st</sup> December 2013.

#### **Results**

A total of 202 children comprising of 108 (53.47%) males and 94 (46.53 %) of females died in paediatric department during study period. Out of the total paediatric deaths 84.6% were infants. The most common causes among neonates were septicemia (33.7%), pre-maturity (28.8%) and birth asphyxia (24.5%) while septicemia (34.6%) was the leading cause of death among all paediatric age groups.

#### **Conclusions**

The childhood mortality pattern in different age groups suggests that we are in need of an effective and more comprehensive improvement in maternal health care along with antenatal and newborn care.

**KEYWORDS:** Medical Records, Paediatric Mortality, Septicemia

### **INTRODUCTION**

Children mortality is one of the very important indicators which reflect the country's development<sup>1</sup>. It is estimated that all over the world, more than 26,000 children under the age of five mostly from developing countries die every day. Causes of death of these childrens are often preventable in their early course<sup>2</sup>. Childhood deaths have been reported mostly from the developing countries where the health facilities are inadequate. Some socio-demographic factors like poor resources, poverty, ignorance of female children and social instability are also plays major role in their mortality.

Malnutrition and infection-related diseases are still the major killers around the world<sup>2</sup>.

The causes of mortality are often poorly documented in developing countries. The Medical Records Department in a teaching hospital has a system of compilation and retention of records, yet the acquisition of meaningful statistics from these records for health care planning and review is lacking. Mortality data from hospitalized patients reflect the causes of major illnesses and care seeking behaviour of the community as well as the standard of care being provided. Records of vital events like death constitute an important component of the Health Information System. Hospital-based death records provide information regarding the causes of deaths, case fatality rates, age and sex distribution, which are of great importance in planning health care services. A better understanding of childhood mortality could contribute to a more effective approach to saving these lives. A country needs sound epidemiological information to prioritize, plan and implement public health programmes. There is a paucity of information about direct causes of child mortality in developing countries<sup>3</sup>. This information also provides the basis for patient care and helps the administration in managing day-to-day hospital affairs.

The present study was aimed at finding the causes of mortality among children admitted in NICU, PICU and paediatric ward during last one year and provides epidemiological information related to mortality

## MATERIALS AND METHODS

A retrospective analysis was conducted with records of patients who died in the Paediatric Department of Govt. Medical College, Miraj, Maharashtra over a 12-month period from 1<sup>st</sup> January to 31<sup>st</sup> December 2013. Govt. Medical College, Miraj is a tertiary-level referral centre.

Children under 12 years of age with illness requiring hospitalization are admitted to the Paediatric Department both from the outpatient and emergency departments. A paediatrician is available for consultation round-the clock under the guidance of senior consultants. There is a Neonatal Intensive Care Unit, Paediatric Intensive Care Unit and Paediatric ward in the department.

Data was collected and analysed regarding age, gender and cause of death of all the children from Medical Record Section attached to PSM department. Data was analyzed using SPSS software ver. 18.0.

## RESULTS

A total of 202 children (out of 2068) comprising of 108 (53.47%) males and 94 (46.53 %) of females died in paediatric department during 1<sup>st</sup> January to 31<sup>st</sup> December 2013. An overall mortality of 9.8% was noted in cases admitted to the Paediatric Department. Out of the total paediatric deaths during one year period, 171 were infants. Proportional mortality rate of infantile age group out of total deaths in children was 84.65%. Two third of the children resides in rural area while one third were located in urban area (Table 1).

The seasonal pattern of mortality showed a bimodal distribution with twin peaks in rainy (June to August) and winter seasons (November to January) with 33.7% and 28.2% mortality respectively (Chart 1).

Out of total 202 paediatric deaths, 163 i.e. 80.7 % were neonatal deaths i.e. 4/5<sup>th</sup> of infants died in their 1st month of life while post neonatal, 1-5 years age and 5-12 years childhood deaths were 8 (3.9%) , 10 (7.4%) and 16 (7.9%) respectively. Out of total 163 neonatal deaths, the most common causes were septicemia (33.7%), pre-maturity (28.8%) and birth asphyxia (24.5%). Septicemia (34.6 %) was the leading cause of death among all paediatric age groups. ARI

(5.7%) and congenital anomaly 10 (5.68 %) were also important causes in childhood mortality (Table 2).

## DISCUSSIONS

Current study shows that deaths in pediatric age group were more in males (53.47 %) were more than the females (46.53 %), this shows biological vulnerability of males to infection is more than females as they are biologically stronger in their early ages. Godale L et al<sup>4</sup> reported the same statistics in their study. The male preponderance has also been documented in various studies<sup>5,6</sup>.

The risk of death in children is closely related to the environment they live in, the antenatal care their mothers receive and care after birth. The risk is highest during neonatal period<sup>3</sup>. In the present study, approximately 80.7 % were neonatal deaths, indicating that the risk of death was highest in the neonatal period. Several other studies have revealed that risk of death is comparatively higher during neonatal and post-neonatal infancy<sup>5</sup>. Gulati P. et. al<sup>7</sup> and Deivanayagam N. et. al<sup>8</sup> also had similar finding that children mortality is higher within one year of age.

The number of deaths was higher in the rainy and winter months of June to August and November to January. Singhi et al.<sup>5</sup> also observed peak numbers of emergency admissions in the winter months, which they thought to be due to rise in ARI and asthma cases.

The causes of mortality vary across different age groups. Septicemia and Birth asphyxia were the two most common causes of deaths in neonatal period. Singh noted from hospital-based data that bacterial sepsis was a major cause of neonatal mortality in India. It was responsible for one-fourth to half of neonatal deaths<sup>8</sup>. Roy R. et al.<sup>10</sup> and Patil S et al.<sup>11</sup> also observed the similar causes of neonatal mortality in their respective studies. ARI is the leading cause of death in young children worldwide<sup>12</sup>. In the present study, ARI was responsible for 25.6% of post-neonatal deaths and 26.6% of deaths in the 1-5-year age group.

## RECOMMENDATIONS

The pattern of mortality in different paediatric age group found in the present study showed that the trend of death in children has not changed as septicaemia, prematurity, birth asphyxia, ARI were the common causes of deaths in them. This suggests that we are in need of more comprehensive antenatal and newborn care and up-gradation of facilities in the tertiary care hospitals for prevention of neonatal deaths. We also need strengthening of the services given under National Rural Health Mission (NRHM). There is urgent need to strengthen Information, Education and Communication (IEC) activities so that the health services given are fully utilize.

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## CONFLICT OF INTREST

None Declared

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## APPENDICES

**Table 1: Distribution of Children Based on Socio-Demographic Variables**

Variable (n-202)		N	%
Age	< 1 month	163	80.69
	1-12 month	8	3.96
	1-5 years	15	7.43
	5-12 years	16	7.92
Gender	Male	108	53.47
	Female	94	46.53
Residence	Rural	138	68.32
	Urban	64	31.68

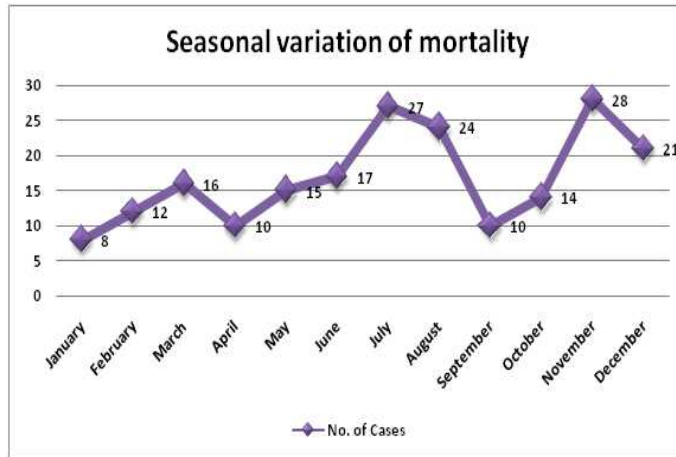


Chart 1: Seasonal Variations of Mortality in Children

Table 2: Distribution of Children Based on Cause of Death According to Age Groups

Age Group	Causes of Death	N	%
< 1 month	Septicemia	55	33.74
	Prematurity & LBW	47	28.84
	Birth asphyxia	40	24.53
	R.D.S.	35	21.47
	Congenital Anomalies	8	4.9
	<b>Total</b>	<b>163</b>	<b>100</b>
1-12 month	ARI	4	50
	Septicemia	3	37.5
	Meningitis	1	12.5
	<b>Total</b>	<b>8</b>	<b>100</b>
1-5 yr	Septicemia	5	33.34
	ARI	4	26.66
	Seizure disorder	3	20
	VHF	2	33.33
	Meningitis	1	6.66
	<b>Total</b>	<b>15</b>	<b>100</b>
5-12 yr	Septicemia	6	37.5
	ARI	3	18.75
	VHF	3	18.75
	Congenital Disease	2	12.5
	Hepatic coma	1	6.25
	Meningitis	1	6.25
	<b>Total</b>	<b>16</b>	<b>100</b>

