MORBIDITY PROFILE AMONG CHILDREN ADMITTED TO A TERTIARY CARE HOSPITAL AT NELLORE, ANDHRA PRADESH

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ABSTRACT

BACKGROUND
Children represent a vulnerable group who need special care and protection. Study of the morbidity pattern among hospitalised children gives comprehensive information of the various illnesses in the community. The knowledge of the morbidity pattern facilitates a strategic plan of action to deal with the pattern of disease prevalent in the community and adopt appropriate strategies in management. This study was conducted to analyse the pattern of paediatric admissions in a new teaching hospital.

MATERIAL & METHODS
This is a retrospective study on admitted children in Paediatric unit of a newly commissioned medical college hospital with 100 paediatric beds during August 2015 to November 2015. The age, sex distribution, various reasons for admission were analysed to study the frequency of diseases among admitted children and their outcome. The details were retrieved from the medical records & admission registers. The results were analysed using MS Excel software and Epi info 7.2 software version statistical software.

RESULTS
It was found that the most common age group of admitted children is 5 years and above accounting for 43.8% of the total admissions followed by children of less than one year age group (20.8%). There was no significant difference in the gender distribution. The most common diagnosis at the time of admission was viral fever (33.7%) followed by acute respiratory tract infections including pneumonia (23.4%), CNS infections (12.9%) and gastroenteritis (11.9%). The overall mortality rate was found to be 7%.

CONCLUSION
Parents are concerned in seeking medical attention regardless of gender and age of the child when sick. Early advice seeking behaviour among parents is directly linked to reduced mortality.

KEYWORDS
Morbidity, Children, Outcome, Viral Fever, Seasonal Variation.

INTRODUCTION: Children represent a vulnerable group who need special care and protection.[1] Timely and reliable information on the leading causes of death in a given population and the changing trends will help in framing the health policies. Though there is largely a decreasing trend in age specific, cause specific, sex specific mortality rates, regional heterogeneity highlights the need for epidemiological assessment of the causes of disease and death on a regular basis.[2] Study of the morbidity pattern among hospitalised children along with the statistical analysis gives a comprehensive information of the various illnesses in the community.[3,4]

The trend in bed occupancy and the admission rate before and during the seasonal peaks helps to plan for better health care, laboratory services and to identify the disease burden. The knowledge of the mortality and morbidity pattern facilitates a strategic plan of action to deal with the pattern of disease prevalent in the community and the appropriate strategies in management and prevention of the health related issues and a review of the same.[5] There is a need to understand and assess if there is a changing trend in the pattern of morbidity among children. In this background, this present study was carried to find out the pattern of admissions in the newly commissioned medical college attached hospital which is still gearing up to become a tertiary care centre in the region.

MATERIAL AND METHODS: This retrospective study was done at AC Subba Reddy Government Medical College Hospital with a 100 bedded Paediatric unit.

The aim of the study was to identify the pattern of admissions in the paediatric department. The study population comprises of children in the age group of one month to 12 years. The study period spanned four months from August 2015 to November 2015 which overlaps with the time during which outbreaks of seasonal infections are commonplace in and around the district of Nellore. The study focused on the age, gender, and the diagnosis at the time of admission. The outcome of the admitted children was studied. The total number of children admitted during the study period were 596 out of which there were 329 male and 267 female children. The data was analysed using MS Excel 2010 and Epi-info 7.2 version statistical software.

RESULTS: The common age group among children admitted is 5 years and above accounting for 43.8% followed by less than one year age group excluding the neonatal period being 20.8%. In the present study, the least admissions were observed in the age group of 1-2 years (5.7%). The results show no statistically significant difference with respect to gender distribution (Table 1 and Fig. 1).

Age Group (Years)	Male (%)	Female (%)	Total (%)
Less than 1 year	68(20.7)	56(21.0)	124(20.8)
1 - 2	24(7.3)	10(3.7)	34(5.7)
2 - 3	41(12.5)	28(10.5)	69(11.6)
3- 4	32(9.7)	26(9.7)	58(9.7)
4 - 5	27(8.2)	23(8.6)	50(8.4)
5 & Above	137(41.6)	124(46.4)	261(43.8)
Total	329(100.0)	267(100.0)	596(100.0)

Table 1: Age and Gender Distribution of Children
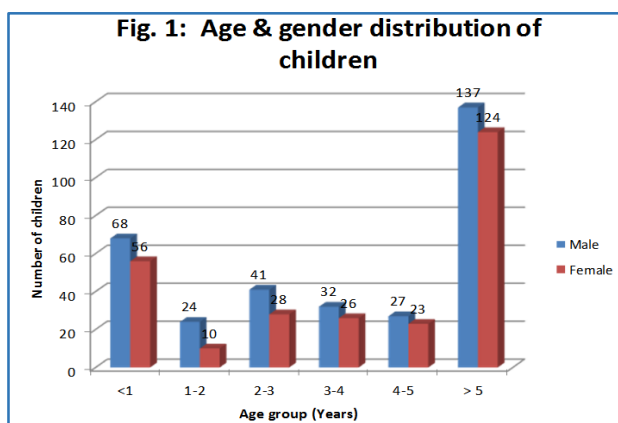
χ^2=4.56; 0.47; NS

Fig. 1: Age & gender distribution of children

The most common diagnosis for which admission was done is due to viral fevers (33.7%) followed by acute respiratory tract infections including pneumonia (23.4%). Severe anaemia requiring admission accounted for 7% of the total cases, a significant number which included beta thalassaemia major, nutritional anaemia, and worm infestation (Table 2 and Fig. 2).

Sl. No	Morbidity Condition	No. of Children	Percentage
1.	Viral fevers including haemorrhagic fever	201	33.7
2.	Acute Respiratory Tract Infections including Pneumonia	140	23.4
3.	Meningitis & Meningoencephalitis	77	12.9
4.	Gastroenteritis	71	11.9
5.	Anaemia	42	7.0
6.	Sepsis	12	2.0
7.	Urinary tract infections	10	1.7
8.	Poisoning	8	1.3
9.	Others	35	5.9
	Total	596	100.0

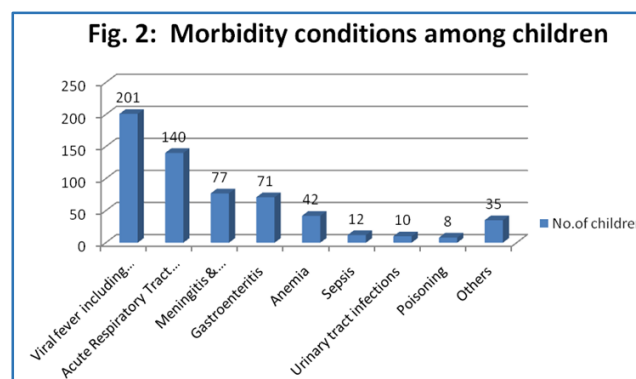*Table 2: Morbidity Conditions among Children*

Fig. 2: Morbidity conditions among children

The pattern of cases admitted month wise revealed a surge in admissions during the month of October and November 2015 when there was an outbreak of viral fevers in and around the Nellore district. The study period was chosen to compare the seasonal changes and its impact on the overall health status of the community and in particular the children. Thus, the number of cases increased from 88 in August 2015 to a peak of 203 in October 2015 and remaining at high level of 192 in November 2015. This sudden spurt in the cases is mainly attributed to an outbreak of viral fevers in the surrounding areas (Table 3 and Fig. 3).

Month	No. of Cases	Percentage
August 2015	88	14.8
September 2015	113	18.9
October 2015	203	34.1
November 2015	192	32.2
Total	596	100.0

Table 3: Prevalence of Cases by Month

Fig 3: Trend of cases over the various months
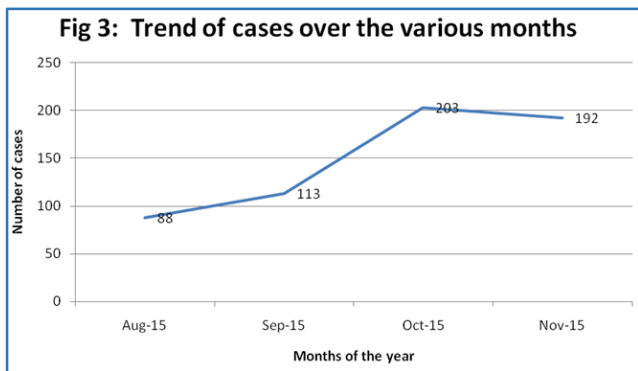
The outcome of the cases revealed 93% recovery with a mortality of 7%. Mortality was maximum among children less than 5 years age group. Majority succumbed to the disease within 24 hours of admission (Table 4).

Outcome	No. of cases	Percentage
Recovered	554	93.0
Died	42	7.0
Total	**596**	**100.0**

Table 4: Outcome of Cases among Children

Disease	No. of Cases
Meningitis, Meningoencephalitis, Seizure disorder	17
Bronchopneumonia, Bronchiolitis, Aspiration pneumonia	11
Sepsis	10
DIC	2
Viral haemorrhagic fever	1
Congestive Cardiac Failure	1

Table 5: Disease Causing Mortality among Children

The common cause of death was related to meningitis and meningoencephalitis followed by respiratory infections. (Table 5).

DISCUSSION: Globally as per WHO fact sheet on children reducing mortality, it was estimated that 5.9 million children less than 5 years died in 2015.[6] The leading causes of death being prematurity, birth asphyxia, pneumonia, diarrhoea and malaria in children under age five.[7] Around 45% of the deaths occur during the neonatal period. Malnutrition is one of the contributory factors in 45% of child deaths. Since 1990, there has been substantial progress to reduce child deaths through vaccination, improvement of sanitation, nutrition and use of ORS in diarrhoea.[8] More than half of the deaths can be preventable, treatable by simple, cost effective interventions. The study has been an initiative to find out the common causes of hospital admissions among children and their distribution in the various age groups. This will identify if there is a paradigm shift or otherwise in the health status and the interventions to be taken to prevent.

The non-communicable diseases are an emerging cause of morbidity among children and adolescents. Though neonatal period was included in studies on mortality and morbidity pattern among children, we have excluded the neonatal period and had analysed only the data from 1 month 12 years. The study conducted at our hospital is to identify the common causes of morbidity and mortality pattern among children visiting the hospital. Various studies found male preponderance in admissions, a finding similar to our study where boys outnumbered the girls in admissions to the hospital but were found to be not statistically significant.[9,10] This could be due to biological vulnerability of the boys to infection. Though there is no disparity in care seeking behaviour between boys and girls, there was lack of appropriate care among poor children in comparison to rich children, rural versus urban children and poorly educated mothers to better educated mothers.[11]

In the present study, appropriate care seeking was similar for both boys and girls and there was no statistical significance. In the study by Tyagi BB et al., they found that more boys than girls were admitted to hospital for various ailments suggestive of a gender bias.[3] Majority of the paediatric admissions are due to infections.[12] The common age group among hospitalised children is under five years. In our study, the common age group was above five years, as we have analysed only the children admitted in the paediatric wards and paediatric emergency unit excluding the neonatal intensive care unit. A major part of the admissions in children under five years is contributed by the neonatal period. In spite of the various national health programmes earmarked for maternal and child health to better the survival rate and reduce the maternal and neonatal mortality, the neonatal mortality rate still remains to be a major contributor of the deaths in children under age five.

In developing countries, the common cause of mortality and morbidity are infections and vaccine preventable diseases.[13] They contribute to a major part of bed occupancy in the hospital. In the present study, though majority of the cases admitted are due to infectious diseases, specific causative agent could not be identified due to limitation of the diagnostic facilities. Though pneumonia and gastroenteritis were the common causes of mortality among children under five years, with improvement of hygiene, nutrition, immunisation and use of ORS in diarrhoea mortality due to these causes has significantly reduced. In our study, though gastroenteritis comprised of 11.9% of the total admissions, there was no single case of death due to dehydration. In a study done in Gondar, Ethiopia, it was found that 33.4% of the deaths occurred within 24 hours.[14,15]

In our study, out of the total 596 admissions, 42 children died with a mortality of 7% and the majority of the deaths occurred within 24 hours which was comparable to other studies.[5] The common factor for high mortality within 24 hours is due to delay in bringing the sick children to hospital by the parents.[16] In the present study, the cause of mortality was due to central nervous system infections like meningitis, meningoencephalitis followed by respiratory infections. In the study by Roy N et al, septicaemia was the

leading cause of death, followed by meningitis and respiratory infections.[4]

The cause of mortality depends upon the environmental conditions, nutritional status and the prevailing sociocultural practices. The mortality was high among children below five years in our study, which is comparable to other studies. In the present study, the admission rate was high during the months of October and November, whereas in other studies it was noted between August to November.[4,17] Though many studies in the paediatric population indicated pneumonia, diarrhoea, malaria, meningitis as the common causes of admission, this present study has included viral fever as a separate entity to highlight the burden of these viral fevers during outbreaks and seasonal surge in occurrence. This will go a long way in taking steps to reduce the burden during the upcoming rainy season. In the present study, the causative agent of the viral fevers could not be established in all the cases, and the study period was also short (only 4 months). These are the important limitations of this present study.

CONCLUSION: Parents are concerned in seeking medical attention regardless of gender and age of the child when sick. Early advice seeking behaviour among parents is directly linked to reduced mortality. During the seasonal surge in admissions, the health care professionals should anticipate and be prepared to handle the unprecedented situation. As vector borne diseases are common in the rural areas, measures aimed at vector (mosquito) control, will go a long way in reducing the seasonal surges in viral fever among children. In addition measures towards personal protection like mosquito nets etc., should be encouraged through mass media campaigns. This will help in reducing the disease burden and hospitalisation among the high risk group.Due to the preventive measures, early care seeking behaviour and management of pneumonia and diarrhoea, there is a changing trend in the morbidity pattern among children.

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