ORIGINAL ARTICLE

Poor Prognostic Factors and Associated Outcome in Children Admitted at Tertiary Care Hospital, Hyderabad

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ABSTRACT

Objective: To evaluate the causes of hospitalization, poor prognostic factors and associated outcome in children admitted at Tertiary Care Hospital, Hyderabad.

Methods: A descriptive prospective case series was conducted in the Department of Pediatric, Isra University Hospital, Hyderabad, in the period of twenty three months. A total of 229 children between the ages of 2 years to 17 years of both genders admitted in the Department of Pediatrics Isra University Hospital, due to any underlying cause were enrolled in this study. Children were divided into two age groups; group A (age between 02 years to 09 years) and group B (age between 10 years to 17 years). Their prognosis and outcome was documented. Results were statistically analyzed.

Results: Mean age of admitted children was 6.23 ± 9.68. The mortality rate by tetanus disease was 12.22% (n = 28 out of total 229 admitted children). Most common cause of admission in group A children was malnutrition (38.51%, n = 57) and in group B children was respiratory tract infection (39.5%, n = 32). Poor outcome was observed more in group A children (7.42% n = 17) as compared to group B children (4.80% n = 11).

Conclusion: There are different risk factors involved in different age groups which prone them for hospitalization and are also associated with poor outcome mainly malnutrition and respiratory tract infection in 02 to 17 years age groups.

Key Words: Poor Prognostic Factors, Mortality Rate, Malnutrition, Respiratory Tract Infections.

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INTRODUCTION:

Compared to adults, children are more prone to infections for most importantly seasonal changes and environmental factors plays an important role in causing certain types of diseases compared to adults through dust & pollution that is why the hospital admission rate and mortality rate among children is more than adults. Besides these factors, children age also plays major role in morbidity and mortality. Younger children less than 5 years of age have higher burden of hospitalization and mortality than children who are older than 5 years because of lack of acquired immunity among them[1,2].

Despite the increasing availability of preventive vaccines, morbidity amongst those children who do become infected remains high, possibly in relation to the many challenges faced in the diagnosis and management in resource-constrained settings including Pakistan. The early identification of risk factors for a poor outcome among hospitalized children could help prioritize the management of those patients with an uncertain prognosis and perhaps increase their likelihood of surviving. Nearly one out of every six discharges from U.S. hospitals in 2012 was for children aged 17 years and younger, the majority of whom were infants, including newborns. Between 2008 and 2012, the rate of hospitalization decreased by 0.6 percent per year among infants and 0.9 percent per year among

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children aged 1-17 years[3,4].

On the other hand in developing countries including Pakistan due to lack of health facilities and good environment along with poor hygiene leads to certain specific diseases such as diarrhea, malnutrition and respiratory tract infection and hence are associated with increased hospitalization along with death rates[1,5].

Knowledge about factors associated with poor prognosis could be valuable in selecting patients for more intensive monitoring and treatment, in order to further improve outcome. In Pakistan there have been no any study conducted which have observed the major causes of hospitalization along with associated poor prognostic factors among children aged two to seventeen years in Pakistan. That is why this study is conducted to help us understand the sickness profile in this age group and drawing up plans for health care to prevent the disease worsening so that hospitalizations are avoided along with better disease prognosis.

METHODS:

A descriptive prospective case series was conducted in the Department of Pediatric, Isra University Hospital, Hyderabad, for the period of twenty three months. A total of 229 children between the ages of 2 years to 17 years of both genders admitted during study period due to any underlying cause were enrolled in this study. Children were divided into two age groups; group A (age between 02 years to 09 years) and group B (age between 10 years to 17 years). After observation of died children we labeled the causative disease as poor prognostic factor if that disease leaded them to death even after available management during their hospitalization. A preformed structured questionnaire was used to collect the objective specific required data for our study such as children's age, their gender, area of residence, diagnosed disease for hospitalization, and most common causes of mortality among them. The data was statistically analyzed. Continuous variables such as age were mean ± SD while categorical variables such as gender, area of residence, causes of hospitalization, and causes of death were calculated as number and percentage.

RESULTS:

Out of total 229 children, the mean age and SD of admitted children were 4.22 ± 9.14 years and the age ranging between 2 to 17 years. Among them, majority were males (58.51%, n = 134) and resident of urban areas (74.0%). Table No. I.

Children were divided into two age groups; group A (age between 02 years to 09 years) and group B (age between 10 years to 17 years). Most of the children in our study were admitted in group A (64.62%, N = 148) as compared to group B (35.37%, N = 81).

Most common cause of admission in group A children was malnutrition (38.51%, n = 57) followed by respiratory tract infection (33.78%, n = 50), Viral Hepatitis (14.86%, n = 22) injury & poisoning (6.75%, n = 10), UTI (3.37%, n = 5) and Meningitis (2.7%, n=4). While most common cause of admission in group B children was respiratory tract infection (39.5%, n=32) followed by viral Hepatitis (22.22%, n=18), malnutrition (16.04%, n=13), and injury & poisoning (7.4%, n = 6). (Table No. II).

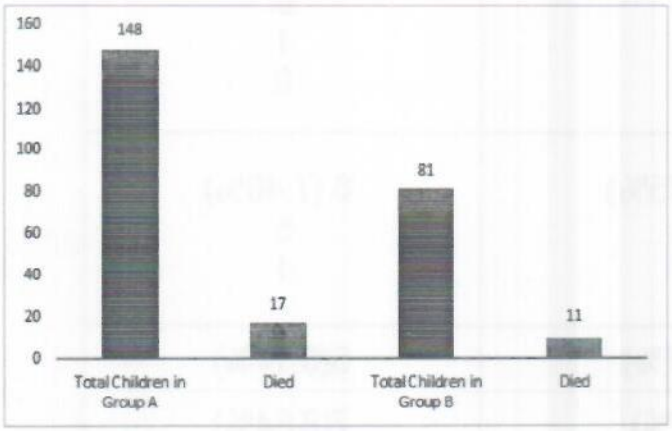
Most of the children in both groups had good outcome and discharged with full recovery while overall mortality rate was observed in both groups was 12.22% (n=28 out of total 229 admitted children). Poor outcome was observed more in group A children (7.42% n=17) as compared to group B children (4.80% n=11) and the most common cause of death among these children was malnutrition in Group A (64.70% n=11) and Respiratory distress in group B (54.54% n = 6). Graph No. I.

DISCUSSION:

Although children mortality rates are progressively declining, the number of children hospitalizations has not shown the same trend as it was shown in previous studies, particularly for some morbid conditions. The data regarding the most frequent conditions were analyzed in our

Table I. Baseline Characteristics of Study Participants.

Characteristics	Group A (n = 148) n (%) Age b/w 02 to 09 years	Group B (n = 81) n (%) Age b/w 10 to 17 years
Mean Age SD - Years	4.31 3.77	13.55 2.01
Gender		
Male	83 (56.08%)	51 (62.96%)
Female	65 (43.91%)	30 (37.03%)
Area of residence		
Urban	91 (70%)	160 (55.36%)
Rural	39 (30%)	129 (44.63%)



Graph No I: In-Hospital Mortality Rate among Admitted Children

studies which were the most common causes of hospitalization in our hospital; here, we try to discuss possible conditioning factors for these findings. Two most common causes of hospitalization in our study were malnutrition and respiratory tract infection in two different age groups, group A and group B, respectively. These two most common causes are the major reasons of hospitalization in majority of the developing counties including Pakistan[5-7].

In our study we have shown that the majority of the children admitted were between the ages of 2 to 9 years and their most common cause of admission was malnutrition (38.51%, n = 57). In a previously conducted international study data have shown that their most common age group of admission was also a younger age group but the disparity occurs when it was compared with the cause of hospitalization because in developing countries like us and in other studies have shown that their most common cause of hospitalization among younger children was due to malnutrition and on the other hand the most common cause of hospitalization in developed countries where the health facilities are much better than ours was due to congenital disease or due to respiratory tract infection[8-10]. However, poisoning & Injury were similarly least common causes among children irrespective of their ages[11,12].

When looking at the data into international literatures it has been observed that almost every third children born in developing country considered as malnourished at pre-school age because of this, both male and female children when turn to adults are more to certain premature diseases such as cardiovascular disease and hypertension in males and females were prone to their reproductive diseases and they give birth to undernourished children[13-16].

Besides that, the developing countries are more prone to diseases which has direct relation with the environment, poor hygiene, and low socioeconomic status that is why as the higher rates seen in malnourished children they are also the most important cause of younger age children death while they are admitted in hospital which is not the case in developed countries as we have seen in previously published literatures[17-19].

Table No. II: Poor Prognostic Factors among Admitted Children

Poor Prognostic Factors	Group A (n = 148) n (%) Age b/w 02 to 09 years	Group B (n = 81) n (%) Age b/w 10 to 17 years
Malnutrition Digestive Disorder Acute Gastroenteritis	57 (38.51%) 19 38	13 (16.04%) 4 9
Respiratory Tract Infection Upper RTI Lower RTI	50 (33.78%) 27 23	32 (39.50%) 17 18
Viral Hepatitis Hepatitis A Hepatitis B Hepatitis C	22 (14.86%) 20 01 01	18 (22.22%) 6 1 0
Injury & Poisoning Motor Vehicle accident Ingestion of poisonous material	10 (6.75%) 5 5	6 (7.40%) 5 1
UTI	5(3.37%)	5(6.17%)
Meningitis	4(2.7%)	7(8.64%)

CONCLUSION:

Different risk factors are involved in different age groups which prone them for hospitalization and are also associated with poor outcome mainly malnutrition and respiratory tract infection in 02 to 17 years age groups.

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