Research Article

An epidemiological study to explore the reasons of late admission of critically ill children to the hospital

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Abstract

Background: Prognosis, in terms of mortality and morbidity of a disease, also depends on the time gap between the initiation of a critical event and admission to the hospital.

Objectives: To explore the reasons behind late admission of critically ill children to the hospital and to advice the parents to seek medical aid for their ailing children in time.

Materials and Methods: This prospective study was conducted to explore the various reasons behind the late admission of critically ill patients between age group of 1 month and 12 years with special reference to medical emergencies admitted in child intensive therapy unit of LLRM Medical College and its associated SVBP Hospital, Meerut, Uttar Pradesh, India.

Results: Of total admitted children, more of rural children (82.7%) were brought to the hospital in critical stage as compared to urban children (17.3%). Parents belonging to rural joint families had significantly poor interpretation of nature of illness as compared to those of urban nuclear families. Only 25.0% parents had realistic views about causative factor for illness whereas 64.7% parents had nonmedical beliefs for illness. There was significant delay in admission of female children as compared to male children.

Conclusion: Rural background, poor economic status of parents, illiteracy, and lack of knowledge and awareness combined with superstitions and traditional misbeliefs were important factors behind late admission of critically ill children.

KEY WORDS: Critical, illness, delayed admission

Introduction

With advancement in medical science, it is now possible to offer therapeutic measures to support and stabilize vital functions and sustain life to children with complex life-threatening illnesses and unstable vital system functions till the underlying primary illness is treated. Critical care aims to provide this advanced care in an organized manner. Monitoring of the seriously ill patients for the early detection of life-threatening events and for assessment of response to therapeutic measures is essential for this practice.

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In India, the factors affecting the health of children are climate, environment geography, prevalence, education of the parents, urban and rural background, and a most important factor that contributes to the morbidity and mortality of a child is the timely diagnosis and treatment of the child, which in turn depends on the time gap between the initiation of the symptoms and first contact with the medical facility and accordingly admission of the child to the hospital. Prognosis of a disease also depends on the time between the initiation of a critical event and admission to the hospital. In some cases, late admission is due to carelessness of parents, customs, and traditions but certainly not the fault of the children.

Aims and Objectives

1. To explore the reasons of late admission of critically ill children to the hospital.
2. To advice the parents to seek medical aid of their ailing children in time.

Table 1: Interpretation of nature of illness by parents at onset of illness

	Rural parents		Urban parents		Nuclear family		Joint family	
	Trivial (%)	Serious (%)	Trivial (%)	Serious (%)	Trivial (%)	Serious (%)	Trivial (%)	Serious (%)
Failure to thrive	66 (95.7)	3 (4.3)	12 (80)	3 (20)	6 (43.9)	8 (57.1)	49 (70)*	21 (30)
Loose motion	72 (97.3)*	2 (2.7)	12 (75)	4 (25)	4 (26.7)	11 (73.3)	56 (74.4)*	19 (25.6)
Vomiting	24 (96)	1 (4)	5 (83.33)	1 (16.7)	2 (40)	3 (60)	12 (46.2)	14 (53.8)
Respiratory distress	31 (70.45)*	13 (29.55)	6 (60)	4 (40)	2 (21.22)	7 (77.78)	13 (29.9)	37 (71.31)
Fever	75 (98.6)*	1 (1.4)	11 (68.75)	5 (31.25)	9 (60)	6 (40)	65 (89.4)*	12 (15.6)
Cough	39 (95.12)	2 (4.88)	8 (8.88)	1 (11.12)	7 (77.8)	2 (22.2)	36 (87.8)	5 (12.2)
Abdominal pain	18 (94.7)	1 (5.3)	3 (75)	1 (25)	2 (50)	2 (50)	12 (63.1)*	7 (36.9)
Swelling of the body	13 (65)*	7 (35)	1 (20)	4 (80)	0 (0)	1 (100)	2 (8.4)	22 (91.6)
Convulsion	9 (37.5)*	15 (62.5)	1 (16.6)	5 (83.4)	1 (20)	4 (80)	2 (8)	23 (92)
Unconsciousness	8 (33.3)*	16 (66.7)	1 (20)	4 (80)	1 (20)	1 (80)	2 (8.3)	22 (91.7)
Jaundice	4 (83.4)*	1 (16.6)	1 (50)	1 (50)	1 (50)	1 (50)	4 (80)*	1 (20)
Headache	18 (94.7)	1 (5.3)	3 (75)	1 (25)	3 (75)	1 (25)	17 (89.5)	2 (10.5)
Others	19 (57.6)	14 (43.4)	3 (42.86)	4 (57.14)	4 (57.15)	3 (42.85)	20 (60.6)	13 (39.4)
Total	396 (86)	77 (14)	71 (67.6)	34 (33.4)	42 (44.2)	53 (65.8)	290 (60)	193 (40)

*$P < 0.05$ compared to urban parents and parents from nuclear family.

Materials and Methods

This study was carried out from February 2002 to March 2003 to explore the various reasons behind late admission of critically ill children aged between 1 month and 12 years, with special reference to medical emergencies admitted in child intensive therapy unit of LLRM Medical College and its associated SVBP Hospital, Meerut, Uttar Pradesh, India.

The study population comprised all critically ill children (a total of 201) coming to the emergency unit of the hospital. All critically ill children admitted in the child intensive therapy unit of LLRM Medical College and associated SVBP Hospital, Meerut, Uttar Pradesh, were included in this study whereas all surgical cases admitted in ICU during that period were excluded.

Table 2: Interpretation of nature of illness by parents according to beliefs

	Nonmedical beliefs (%)	Medical beliefs (%)	Not certain/ known (%)
Failure to thrive	18 (53)	11 (32.3)	5 (14.7)
Loose motion	17 (53.1)	12 (37.5)	3 (9.3)
Vomiting	5 (45.5)	4 (36.36)	2 (18.1)
Respiratory distress	16 (80)	2 (10)	2 (10)
Fever	19 (73.07)	6 (23.09)	1 (3.84)
Cough	13 (81.2)	2 (12.5)	1 (6.3)
Abdominal pain	5 (62.5)	3 (37.5)	–
Swelling of the body	3 (37.5)	4 (50)	1 (12.5)
Convulsion	9 (80)	1 (10)	1 (10)
Unconsciousness	9 (80)	1 (10)	1 (10)
Jaundice	2 (66)	1 (33)	–
Headache	6 (75)	1 (12.5)	1 (12.5)
Others	8 (61.5)	4 (30.7)	1 (8.8)
Total	130 (64.7)	52 (25.8)	19 (9.5)

Results

Table 1 shows that rural parents had significantly poor interpretation of nature of illness of their child compared to their urban counterparts in cases such as loose motions, respiratory distress, fever, swelling of body, convulsions, unconsciousness, and jaundice; and the observed difference was statistically significant ($P < 0.05$).

On comparison it was found that the parents of joint families had significantly poor interpretation of nature of illness compared to those of nuclear families, especially in cases such as failure to thrive, loose motions, fever, abdominal pain, and jaundice.

Table 2 shows that while comparing the interpretation of illness based on beliefs, only 25.8% parents had medical beliefs about illness of their children and 9.5% were unaware of the reason behind the illness of their children. Nonmedical beliefs were most common in cough (81.2%), respiratory distress (80.0%), convulsions (80.0%), and unconsciousness (80.0%).

Table 3 shows the initial practices at the onset of illness. Overall 59.7% parents first tried other practices or remedies during initial symptoms or signs of illness of their children, whereas only 41.3% parents first sought the help of a doctor, especially in cases such as respiratory distress, swelling of the body, convulsion, and unconsciousness. Various traditional practices were observed such as worship of God, jhar-funk, tabiz, sacred thread, bathing in the pond, branding of forehead, and home remedies/herbal medicines. Self-medication was practiced by many of the parents.

Table 4 shows interval between the onset of illness and admission to the hospital. Majority of the rural children (43.8%) were admitted to the hospital after 10 days or more of the onset of illness, whereas 42.1% urban children were admitted to the hospital within 2–5 days.

The mean ± SEM interval between onset of illness and admission to the hospital was 10.97 ± 0.14 days in rural

Table 3: Initial practices at onset of illness

	First tried other remedies (%)	First taken to doctor (%)
Failure to thrive	29 (74.4)	10 (25.6)
Loose motion	21 (65.6)	11 (34.4)
Vomiting	7 (63.6)	4 (36.4)
Respiratory distress	5 (25)	15 (75)
Fever	21 (80.7)	5 (19.3)
Cough	13 (81.25)	3 (18.75)
Abdominal pain	7 (87.5)	1 (12.5)
Swelling of the body	2 (25)	6 (75)
Convulsion	1 (8.19)	10 (91.81)
Unconsciousness	1 (8.19)	10 (91.81)
Jaundice	3 (100)	0
Headache	7 (87.5)	1 (12.5)
Others	8 (71.5)	5 (28.5)
Total	120 (59.7)	81 (41.3)

children and 5.20 ± 0.25 days in urban children with statistically significant difference of $P < 0.05$.

The mean ± SEM interval between onset or illness and admission to the hospital was 6.19 ± 0.27 days in nuclear family children and 7.29 ± 0.11 days in joint family children. However, the difference observed in our study was not statistically significant ($P > 0.05$). On comparison, 37.5% nuclear family children were found to be admitted to the hospital in 6–10 days whereas 41.5% joint family children were admitted to the hospital within 10 days or more.

The mean ± SEM interval between onset of illness and admission to the hospital was 8.42 ± 0.17 days in male children and 10.61 ± 0.30 days in female children and difference observed was statistically significant ($P < 0.05$).

On comparison, 7.3% male children and 3.2% female children were found to be admitted to the hospital within first 24 h of onset of illness whereas around 44.2% male children and 39.6% female children were admitted to the hospital after 10 days or more of onset of disease.

Table 5 shows the difference between the onset of illness and admission to the hospital among apparently normal children and those with congenital disabilities; 8.9% apparently normal children and 18.1% children with mental disabilities were admitted to the hospital within first 24 h of onset of illness, however, 42.5% apparently healthy children and 31.9% children with congenital disabilities were admitted after 10 days or more of initiation of disease.

The mean ± SEM interval between onset of illness and admission to the hospital was 8.26 ± 0.12 days in apparently normal children and 9.28 ± 0.22 days in children with congenital/mental disabilities with statistically significant difference of $P < 0.05$.

Discussion

The difference in interpretation between rural and urban parents observed in our study might be due to various health education programs circulated in public by mass media such as diarrhea and ARI control program. Because rural populations have less access to these programs as compared to urban populations, the observed difference was expected in our study. Similarly Srivastava and Sinha[1] also observed that mild and early cases of diarrhea were ignored by illiterate rural and urban slum dwellers. Majority of them knew about a few signs or severity but they were unaware about the concept of dehydration.

In our study, majority (64.7%) of parents had nonmedical beliefs regarding the nature of illness of their child. Taneja et al.[2] also observed that parents of joint families had significantly higher superstitious beliefs ($P < 0.01$). Tomar[3] reported that superstitions were common in joint families whereas respondents from nuclear families were in favor of realistic causes. This could be due to influence of elderly member in the joint families.

Bains and Raizada[4] reported that 26.7% parents blamed evil spirit as the cause of epilepsy in their children, and other causes stated by parents were contagious disease, physical/mental weakness, or brain damage.

Table 4: Interval between onset of illness and admission to the hospital

	Within first 24 h (%)	2–5 days (%)	6–10 days (%)	10 days and more (%)
Rural (%)	6 (2.98)	16 (7.96)	53 (26.3)	88 (43.8)
Urban (%)	7 (18.4)	16 (42.1)	12 (31.5)	3 (7.8)
Nuclear families (%)	4 (12.5)	11 (34.4)	12 (37.5)	5 (15.6)
Joint families (%)	6 (3.5)	35 (20.7)	58 (34.3)	70 (41.5)
SEG A (%)	5 (71.4)	2 (28.6)	–	–
SEG B (%)	5 (15.6)	8 (25)	12 (37.5)	7 (21.9)
SEG C (%)	6 (3.7)	27 (16.7)	49 (30.3)	80 (49.3)
Male (%)	10 (7.3)	20 (14.4)	47 (34.15)	61 (44.2)
Female (%)	2 (3.2)	14 (22.2)	22 (34.9)	25 (39.6)

Table 5: Interval between onset of illness and admission to the hospital

	Within first 24 h (%)	2–5 days (%)	6–10 days (%)	10 days and more (%)
Apparently normal children (%)	16 (8.9)	36 (20.1)	51 (28.5)	76 (42.5)
Children with congenital/mental disabilities (%)	4 (18.1)	5 (22.7)	6 (27.3)	7 (31.9)

Of the total admitted children, more of the rural children (82.7%) were brought to the hospital in critical stage of illness as compared to urban children (17.3%), which shows that rural background was an important contribution to delayed admission to the hospital. Similarly Panday et al.[5] also observed in their study that boys were 2.6 times more likely to be seen by qualified doctors compared to girls.

Singh[6] reported that mothers in rural areas were very superstitious and believed in giving traditional herbal medicines during common ailments before seeking medical advice. In our study less than half of the children were taken to doctors in all illnesses except in case of respiratory distress, swelling of the body, convulsions, and unconsciousness. Dattal et al.[7] observed that only 22.8% rural ladies and 20.2% urban ladies consulted physician and gave drugs for severely malnourished children.

Majority (64.7%) of parents had nonmedical beliefs, such as evil spirit, magic effect, devil, worth of God, hot/cold food, bad water, and weather, regarding causation of illness in their children, whereas only 25.0% parents had scientific or realistic views.

Only 41.3% parents sought medical care at the onset of illness in their children. Among them 53.08% parents consulted qualified doctor, whereas 46.92% consulted unqualified "doctors" or doctors practicing non-allopathic systems of medicine.

It was observed that nonavailability of medical facilities was not a factor, but awareness regarding illness and misinterpretation of nature of illness were significant characteristics in determining type of health care sought. Most of the parents (59.7%) first tried other remedies at the onset of illness such as worship of God, jhar-funk, and tabiz. Many of these practices were harmful to the children and some although not directly harmful caused unnecessary delay in getting proper medical treatment.

In our study the apparently normal children were brought earlier to the hospital as compared to those with congenital/mental disabilities. Sachar et al.[8] also observed similar findings. Bias against children with congenital/mental disabilities was observed, as time interval between onset of illness and admission to the hospital was significantly longer in them as compared to apparently normal children.

Conclusion

It was observed that rural background, poor economic status of parents, illiteracy, and lack of knowledge and awareness combined with superstitions and traditional misbeliefs were important factors behind late admission or critically ill children.

A definite bias against girls and children with disabilities was also observed. Apart from this, other factors such as poor communication and transport facilities available to rural population, centralization of medical services, and poor referral by peripheral health services also contributed largely in delay.

There is need to increase awareness among population about illness, and children and parents should be instructed to consult qualified medical personnel immediately at the onset of illness. This will not only reduce infant and child mortality and morbidity rate but will also be cost-effective.

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