

## Study of Contact of TB and Measles in Malnourished Children at a Tertiary Care Centre

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**Abstract:** The important role of malnutrition in child death is that most nutritional deficiencies, including vitamin A and Zinc, impair immune function and other host defenses leading to a cycle of longer lasting and more severe infection and even worsening nutritional status. Thus inadequate intake, infection and poor nutritional status are intimately linked. Aim is to study the contact of TB and measles in malnourished children. Information was collected from interview with the parents and examination of under five years children was entered in a predesigned and pretested proforma of the study. History of contact of tuberculosis was present in 9.2% children. While measles in malnourished children is 31.1%, which has significance, precipitate of severe grade of malnutrition as compared to no history of measles.

**Keywords:** Malnutrition, Measles, TB, Nutritional Deficiency

### INTRODUCTION

Acute lower respiratory tract infections such as pneumonia killed 4.4 million people of whom about 4 million were children. Diarrheal diseases (including cholera, Typhoid and dysentery), which are spread chiefly by contaminated water or food killed 3.1 million most of them children. Tuberculosis killed 1 million children. Malaria killed 2.1 million people including 1 million children. Measles killed more than 1 million children. Whooping cough killed 3,50,000 children. Neonatal tetanus killed almost 46,000 infants. Intestinal worm killed at least 1,35,000 people.

### Acute lower respiratory tract infections

Acute lower respiratory tract infections are being increasingly recognized as a major cause of children mortality, being associated with a third of under-five death in developing countries [1]. Pneumonia was estimated to account for 3.1 million under five deaths in the third world annually. When classified as per WHO guidelines for the diagnosis of ALRI, these simple criteria identified 91% of the children. Case fatality was related to the severity of the WHO classification for ALRI: (Pneumonia 0%. Severe pneumonia 8.7%, Very severe pneumonia 47%, Wheezing 0%, severe group 100%). An inverse relationship between ALRI mortality and age has been documented. Case fatality rate in male was 12.8% and 7.1% in female. Important significant independent predictors of mortality in the current series were inability to feed (or 6.2%). Presence of loose stools (or 5.1%) and severe malnutrition (3.9%). Earlier studies have also documented failure to feed and malnutrition to be significant risk factors for mortality in ALRI. Immune deficiency and impairment lead to severe infection and complication of ALRI, with consequently higher mortality [1]. 65.5% malnourished children according to the IAP classification forced vital capacity

and forced expiratory volume, where significant reduced in malnourished children on PEM adversely affected respiratory function [2].

### Measles

Measles resulted in prolonged and profound depression of appetite and caused weight loss in the affected children and measles death (13%), it peaked during March and April [3]. Severity and high mortality of the disease is found especially in countries where MN is also common. 60% of the cases were in between 2 and 3 year of age and 91.5% were in children below 7 year [3]. Marasmus, which is more prevalent in India, is not as susceptible to measles as Kwashiorkor, which is more common in Africa. Indeed children who die from measles had kwashiorkor before they acquired measles. [4].

### Tuberculosis

Mortality due to tuberculosis is higher in malnourished children. The malnourished children are more susceptible to develop tuberculosis probably due to depressed immunological functions. Tubercular diseases may precipitate kwashiorkor or marasmus in an infant with borderline malnutrition [5].

**Meningitis and malnutrition**

Tuberculosis in children is a health hazard and neuro tuberculosis especially tubercular meningitis is the main cause of death amongst the various complication of primary infection: tuberculosis was responsible or 9.6% of admission and 10% of the mortality (1981-83). CNS tuberculosis accounted for 65.5% total deaths [6].

**AIM AND OBJECTIVE**

Study of contact of TB and measles in malnourished children at a tertiary care centre

**MATERIALS AND METHODS**

This community-based study was carried out in Department of Pediatrics, Information was collected from interview with the parents and examination of under five years children was entered in a predesigned

and pretested proforma of the study. Information was obtained regarding the name, age, sex, address, occupation of parents, literacy and age of mother, father, socio-economic status, number of sibling and birth order of child and space between two siblings and information regarding place of residence (Rural, Urban) types of house (kaccha/pakka) and other epidemiological variables.

**Contact History**

History taking of contact with infectious disease, Measles and tuberculosis. Contact of tuberculosis define as- any child who lives in a household with an adult taking ATT or has taken ATT in the past two years.

**RESULTS****Table-1: History of contact with TB and Measles in malnourished children**

Malnutrition (n=119)	Tuberculosis		Measles	
Malnutrition III (n=50) P=0.0034	Yes	03 (6%)	Yes	14 (28%)
	No	47 (94%)	No	36 (72%)
Malnutrition IV (n=69) P=0.0022	Yes	08 (11.5%)	Yes	23 (33.4%)
	No	61 (88.5%)	No	46 (66.6%)
<b>Total</b> P=0.000027	Yes	11 (9.2%)	Yes	37 (31.1%)
	No	108 (90.8%)	No	82 (68.9%)

History of contact of tuberculosis was present in 9.2% children. While measles in malnourished children is 31.1%, which has significance, precipitate of

severe grade of malnutrition as compared to no history of measles.

**Table-2: Recurrent illness history**

Illness	No.	Percentage
ARI	36	30.2%
AWD	83	69.8%
<b>Total</b>	119	100%

**DISCUSSION**

Malnutrition in children is widely prevalent in the developing countries. Globally 146 million children under five year are under weight and more than half of them live in South Asia. India estimated 57 million children are under weight (moderate to severe). More than 50% of deaths under five-year of age are associated with malnutrition. In India malnutrition kills about 5 lacs children every year. About 75-80% of hospitalized children suffer from some degree of malnutrition. Children, whose major problem is malnutrition or whom malnutrition is indirectly

responsible for hospitalization occupies about 25% pediatrics beds.

History of contact of tuberculosis was present in 9.2% children. While measles in malnourished children is 31.1%, which has significance, precipitate of severe grade of malnutrition as compared to no history of measles. History of recurrent illnesses like AWD was present in more than 69.8% & another recurrent illness are ARI (32.2%) both can precipitate malnutrition in children and vice versa. This study shows history of measles in malnourished children in 31.1%, which precipitate severe grades of malnutrition as compared to

no history of measles. Severity and high mortality of measles is present especially in those countries where malnutrition is also common, (60% of the cases were in 2-3 years of age and 91.5% were below 7 years of age as reported by S. Percira A Begum *et al.*, [7]. Measles resulted in prolonged and profound depression of appetite and caused weight loss in the affected children. Complications were very less in well-nourished children than severely malnourished children. In their study history of contact of tuberculosis was present in 9.2% of children. Ghai O.P. showed malnourished children are more susceptible to develop tuberculosis due to depressed immunological functions.

## CONCLUSION

Among VPD, measles and TB were still our major problems. This Study fulfilling all the aim and objectives and it can be concluded from present study that nutritional status of under five children lays key role in morbidity and mortality among these groups of children. Higher under five morbidity and mortality emphasizes the need for strengthening of health services at least in those areas which are unreachable. This study also emphasizes that for every malnourished child, nutritional management, should be an essential part of management modality.

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