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Spaul FOR Research	Original Research Paper	Paediatrics	
Property Press	PREVALENCE OF MALNUTRITION AND CLINICAL PROFILE IN INFANTS AND YOUNG CHILDREN AT THE TIME OF HOSPITAL ADMISSION WITH ACUTE DIARRHOEA: AN OBSERVATIONAL STUDY IN RURAL AREA OF JHARKHAND"		
Vishal	Specialist medical officer, Department of pediatrics, CHC,Pa	tratu,jharkhand	
Madhurima Prasad	Senior Resident, Department Of Surgery, Rims, Ranchi		
KEYWORDS :			

Acute diarrhoea is the most common gastrointestinal disorder in children, and the most direct effect of it is dehydration1. It is manifested as sudden episode of loose watery stool which is generally 3 or more episodes per day and last for seven to ten days, generally less than 14 days 2 .most episodes of acute diarrhoea are infectious and caused by a variety of viruses and bacteria3.

Globally diarrhoea is the 3rd most common cause of under 5 mortality after pneumonia and preterm birth4 and majority of them occurs in developing countries5. India has made steady progress in reducing deaths in children younger than 5 years, with total deaths declining from 2.5 million in 2001 to 1.5 million in 2012 6 but the proportional mortality due to diarrhoea is still very high.

Many studies showed that incidence of diarrhoea is much more prevalent in malnourished children7. Malnutrition depresses immunity thus increases severity of infection and diarrhoea8,9. Thus already depleted nutritional reserve of the body get rapidly diminished9. Thus by reducing prevalence and severity of diarrhoea prevalence of malnutrition can be decreased<sup>10</sup>.

The present study has been undertaken with following aims and

### objectives:

1. To know the prevalence of malnutrition at admission among patients with acute watery diarrhoea.

2. To know various symptom and sign associated with diarrhoea

### MATERIAL AND METHODS

This was a prospective observational study done in the indoor patients of Department of Pediatrics, at community health centre Patratu. All cases were selected for 3 months from March 2018 to may 2018. 84 cases were selected and followed up.16 patients were lost to follow-up and 68 cases were followed up for the analysis.

### **INCLUSION CRITERION:-**

All children aged 0-5 years of age, of either sex having history of acute onset of watery diarrhoea not more than 7 days of duration

### **EXCLUSION CRITERION:-**

- 1. Patients who had dysentery
- 2. Diarrhoea more than 7 days duration
- 3. Patient who had taken treatment somewhere else /taken iv fluids
- 4. Patients with metabolic disease/chronic medical condition
- $5. \quad {\sf Patients} \ {\sf who} \ {\sf did} \ {\sf not} \ {\sf cooperate} \ {\sf and} \ {\sf did} \ {\sf not} \ {\sf come} \ {\sf for} \ {\sf follow} \ {\sf up}.$

The study was carried out with the written approval of the parents. Detailed history and thorough clinical examination of cases included in the study was done. Weight was taken for each patient and compared against his age and divided into various grade of malnutrition according to Indian academy of pediatrics (IAP) classification. Clinical profile of each patient was recorded at the time of admission.

# RESULT

# Table 1 showing sex ratio

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	Male	Female	
<1 year	13	8	21(30.8%)
1-2 year	20	9	29(42.6%)
2-5 year	11	7	18(26.4%)
	44(64.7%)	24(35.2%)	

# Table 2 showing nutritional status of the patient according to IAP classification according to weight /age

Nutritional status	Male	Female	Total		
Normal (≥80%)*	9	4	13(19.1%)		
Grade1 malnutrition (71-80%)	13	8	2130.8%)		
Grade 2 malnutrition (61-70%)	17	9	26(38.2%)		
Grade 3 malnutrition (51-60%)	3	2	5(7.3%)		
Grade 4 malnutrition (<50%)	2	1	3(4.4%)		

\*reference used is 50th centile of old Harvard standards

## Table 3

Common symptom associated with diarrhoea			
Vomiting	47(69.1%)		
Suppression of urine >8 hours	26(38.2%)		
fever	28(41.1%)		
Abdominal distension	19(27.9%)		
Breathing difficulty/acidotic breathing	2638.2%)		
Convulsion	3(4.4%)		

### Table 4 Distribution of cases according to sign of dehydration.

Sign	No. of Cases
Altered sensorium (Restless / irritability/	53(77.9%)
lethargy/drowsiness/coma	
Eye Ball :	45(66.1%)
Sunken	23(33.8%)
Grossly sunken	
Tongue:	26(38.2%)
Dry	16(23.5%)
Very dry	
Pulse volume :	43(63.2%)
Low	19(27.9%)
Very feeble	6(8.8%)
Impalpable	
Tachypnoea	9(13.2%)
Acidotic breathing	25(36.7%)
Tachycardia	63(92.6%)
Hypotension	30(44.1%)
Cold extremities	56(82.3%)

## DISCUSSION

This observatory study was done to find out the prevalence of malnutrition among patients with acute watery diarrhoea and their clinical profile. Maximum number of cases were from 1-2 years of age(42.6%). Naruka et al11 observed 51% during first 2 years of life and 27.5% between 1 to 4 years of age. Mittal et al12, in their study, observed 90% cases below 3 years of age.

Marete I etal13 found mean age of 13.2 months. This may be due to poor hygiene, and improper handling and storage of milk and other food material, as well as immaturity of immune system of the body rendering it susceptible to microbial infection.

Males (64.7%, n=44) outnumbered female child (35.2%, n=24). This disparity in sex may be explained by the fact that parents are more concerned about the male child. Similar incidence was found by

Naruka et al 11. Marete I etal 13 found male to female sex ratio of 1.16:1

Most of the cases of acute diarrhoea (80.9%) were malnourished (less than 80% of the expected body weight for age). Among malnourished children maximum number of cases (38.2%,n=26) were grade II malnutrition followed by (30.8%,n=21) in grade I, (7.3%,n=5) in grade III and only (4.4%,n=3) in grade IV malnutrition. Marete I etal 13 found 43.9% of children had acute malnutrition, and 12% being severely malnourished .There are many possible explanation of increased incidence of diarrhoea with malnutrition. Alteration in structure and function of intestine (Amin et al14), intolerance to diasaccharides (Chandra et al15) overgrowth of bacteria 16 may be some possible explanation.

Vomiting was most common symptom (69.1%,n=47),followed by fever(41.1%),reduced urinary output(38.2%),acidotic breathing/breathing difficulty(38.2%),abdominal distension(27.9%) and convulsion(4.4%). On clinical examination at the time of admission, 36.7% cases had very feeble /impalpable pulse volume, 44.1% cases had hypotension. Naruka et al observed vomiting in 60% and fever in 55.5% cases of their study. Overall incidence of convulsion was 4.4%, n=3. It was maximum in hypernatraemic dehydration.

Almost all cases were dehydrated at the time of presentation in hospital. About 66.1%, n=45 cases were moderately dehydrated and 33.8%, n=23 of children were severely dehydrated. The reason for the high incidence of dehydration may be due to delay in starting treatment and bringing the child to hospital, very poor knowledge of dehydration therapy.

## SUMMARY AND CONCLUSION

It could be concluded that:

1. Maximum number of cases was in age group of 1 - 2 years (42.60%) followed by <1 year (30.8%).

2. There is preponderance of male. Male: Female ratio was 1.83:1.

3. Majority of patients were malnourished (80.10%), out of which grade II malnutrition (38.2%) was most common, grade I (30.8%), Grade III (7.3%) and grade IV (4.4%).

4. Besides Diarrhoea most common presenting symptoms was vomiting (69.1%), fever (41.1%), suppression of urine (38.20%) ,breathing difficulty(38.2%)

5. Common signs observed were tachycardia (92.60%), altered sensorium (77.9%), cold extremities (82.3%), hypotension (44.1%).

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