

## ORIGINAL ARTICLE

## Gastroenteritis at the Pediatric Ward of Tembakau Deli Hospital, Medan, in 1988

by

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### Abstract

In a period of 1 year (1 January - 31 December 1988) a retrospective study on patients admitted to the Pediatric ward of Tembakau Deli Hospital, Medan, was done. This hospital is a referral hospital for patients from hospitals of Dept. of Plantation in North Sumatera and Aceh.

During year 1988, there were 1339 infants and children hospitalized at the Pediatric ward Tembakau Deli, Medan. Of these patients, 183 had gastroenteritis; it was most frequently found in the age group of 0-13 months (46.4%). The patients consisted of 53.55% males and 46.45% females.

Most of the patients i.e. 140 (76.51%), had good nutrition. Malnutrition were found in 31 patients where 16.94% among them were moderate malnutrition, and 12 patients (6.55%) had malnutrition.

The total mortality rate of gastroenteritis in this study was 2.18% which was usually associated with severe complications while pure gastroenteritis showed no (0%) mortality.

Gastroenteritis is still leading as one of the five important diseases in children in Indonesia [1] and it is often complicated with dehydration for which hospital care is required. The incidence of gastroenteritis in developing countries such as Indonesia is about 20-50% per 100 people/year, and 70-80% of patients are younger than 5 years with the peak incidence in the age group younger than 2 years [2].

Marbun (1982) [3], from the Laboratory of Pediatrics, Dr. Pirngadi Hospital, Medan, reported 40-60% of patients hospitalized were with gastroenteritis, and Pasaribu et al. [4], reported 46.2% in 1983.

In addition to the high morbidity, the

mortality of gastroenteritis is also high [3,4]; the case fatality rate of gastroenteritis alone in Indonesia was 5-10% while that of gastroenteritis with complications was 10-20% [5].

The study by Marbun et al. [3] revealed 14.3% mortality; while Pasaribu et al. [4] reported 13.0%.

This paper is to describe the patterns of gastroenteritis in patients hospitalized at the Pediatric ward of Tembakau Deli Hospital, Medan, during year 1988, including the distributions of patients by the month of incidence, their age, sex, nutritional status, clinical manifestations, accompanying diseases and mortality.

### Materials and methods

This study was done retrospectively. The materials were obtained from the medical records of patients with gastroenteritis hospitalized in a period of 1 year (January 1, 1988 to December 31, 1988) at the Pediatric ward of Tembakau Deli Hospital, Medan.

The diagnosis of gastroenteritis was made by the anamnesis showing the presence of diarrhea with watery stool and the frequency of more than three times per day ( $3 \times / 24$  hours) with or without vomiting.

The nutritional status of patients was adjusted to a standard using the Kartu Menuju Sehat ("Growth Chart Card"), as recommended by the Direktorat Gizi Departemen Kesehatan RI (Directorate of Nutrition, Dept. of Health RI), and the results of Lokakarya Antropometri Gizi (Workshop on Nutritional Anthropometry), 20-30 May 1975.

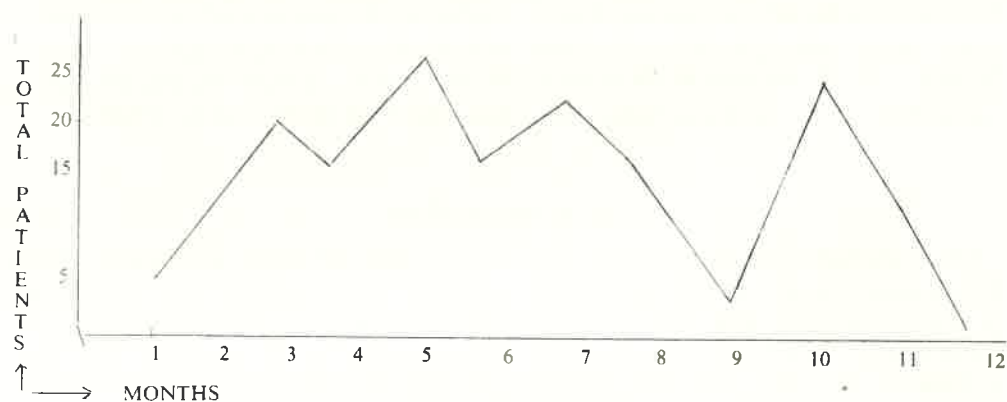
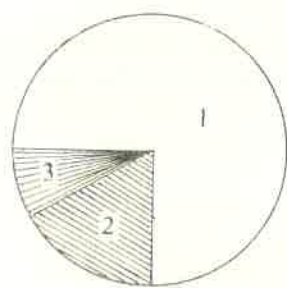
The mortality according to the causes of death and the type of gastroenteritis was studied.

### Results

1. From 1339 patients admitted to the Pediatric ward of Tembakau Deli Hospital, Medan, since January to December 1988, there were 183 (13.67%) patients suffering from gastroenteritis; the age distribution is presented in Table 1.
2. Of 183 patients with gastroenteritis, 98 (53.55%) were males and 85 (46.45%) were females; there was only a slight difference.
3. May and October appeared as the predominant months in 1988 where the high percentage and number of

Table 1 : *Distribution of patients by age*

Age (years)	Number	%
0 < 1	85	46.4
1 - 5	62	33.9
> 5	36	19.7
Total	183	100

Figure 1 : *Distribution of patients with gastroenteritis according to the period of incidence*Figure 2 : *Nutritional status of the patients*Table 2 : *The accompanying diseases in 63 patients with gastroenteritis*

Diseases	Number
Tonsillopharyngitis	38
Bronchitis	6
Bronchopneumonia	8
Measles	2
Chicken-pax	1
Spasms/Encephalitis	6
Severe malnutrition	12
Sepsis	3
Typhoid fever	1
Acidosis	1
Shock	7

Table 3 : *Clinical manifestations*

Symptoms	Number
Diarrhea	163
Vomiting	139
Fever	88
Convulsions	5
Cough	19
Abdominal distension	3

- patients occurred (Fig. 1).
- Based on the nutritional status of the patients, most of the patients (76.51%) were wellnourished (Figure 2).
- Of the 183 patients with gastroenteritis, 120 had gastroenteritis alone, and 63 gastroenteritis with accompanying diseases, which are presented in Table 3.
- The clinical manifestation in the patients with gastroenteritis is showed in Table 3.
- Of 183 patients with gastroenteritis, 4 patients (2.18%) died at the age younger than 5 years, with accompanying diseases/severe complications were found in 2 patients of 0-1 year (pneumonia and sepsis) and in 2 patients of 1-5 years old (encephalopathy and irreversible shock).

### Discussion

The morbidity of gastroenteritis in patients hospitalized in the Pediatric ward of Tembakau Deli Hospital, Medan, in 1988, was 13.7% (183 patients hospitalized with gastroenteritis out of 1339 hospitalized patients). The morbidity in this hospital was lower than in other hospitals we mentioned because this hospital is a referral hospital from hospitals of Dept. of Plantations in North Sumatera/Aceh. Table 4 shows the morbidities found in several studies. Most of the patients with gastroenteritis were found in the age group of 0-1 year. This differed from that reported by Brotowasisto where the high incidence of diarrhea was noted in the age group of 1-2 year [2]. Sunoto et al stated that it was found in more than 60% of patients younger than 1 year [5].

Patients in this study consisted of more males than females, i.e. 98 (53.6%) males and 85 (46.4%) females. Brotowasisto reported the sex ratio of 1 : 1 [2]. Other studies, in general, showed that diarrhea was predominantly found in males than females [3,4,5].

Number of patients who had gastroenteritis was higher in the months of May and October 1988 (Fig. 1). This study did not include the correlation between the number of the patients and the average of rainfall in the months. Some investigators

had found the variation in seasons [2,6] while others stated that there was no association between number of patients and the average of rainfall every month [6]. Patients with gastroenteritis who had malnutrition in this study were 23.5%, consisting of 16.9% moderate, and 6.6% poor malnutrition (Fig. 2). Some investigators described the variation from 11.5% to 34.2% [3,4,6,7] noted 45.5% good nutrition, 46.2% moderate nutrition, and 8.2% poor nutrition.

The mortality rate in these patients with gastroenteritis was 2.2%, and all of them died with gastroenteritis accompanied by severe complications; while none (0%) with gastroenteritis alone died. Sunoto from Dr. Cipto Mangunkusumo Hospital, Jakarta reported the mortality rate of 17.1% for a period of 1971-1973 [5]. Soetjningsih reported the mortality rate of 11.3%, where 63.4% had complications such as bronchopneumonia, OMA, PCM, etc [8]. Sumaryono reported the mortality rate of 7.2% in patients with gastroenteritis in Dr. Soetomo Hospital. Surabaya where 33.33% of them were caused by encephalopathy 17.1% by encephalopathy + pneumonia, 14.4% by pneumonia, 10.8% by sepsis and 6.1% by irreversible shock [7].

Table 4 : Morbidity rate of gastroenteritis in several hospitals in Indonesia

Investigators	Year	Institution	Number of Patients	Gastro-enteritis	%
Sutoto	1971	RSCM (Jakarta)	5466	1809	33.1
	1972		5300	1579	19.7
	1973		5118	1463	28.6
Sebodo T	1974	RSUGM (Yogyakarta)	1504	317	21.0
	1975		1870	470	25.0
	1976		1959	525	27.0
	1977		2025	499	25.0
	1978		2118	449	24.0
Sudaryat	1969	RSUP (Sanglah Denpasar)	645	152	23.6
	1975		1938	593	30.6
	1976		1301	356	27.3
	1977		1839	721	39.3
	1978		1789	520	29.1
BKGAI Kumpulan Makalah Palembang	1976	RSUP (Palembang)	2125	797	37.0
	1977		2121	500	23.5
	1978		1366	310	22.7
Abbas N	1969	RSU (Ujung Pandang)	807	236	29.2
	1970		816	180	22.1
	1971		1121	430	38.4
	1972		1096	421	38.4
	1973		936	279	29.0
	1974		1053	489	46.4
	1975		1625	437	29.97
Rosmayudi	1972	RS Hasan Sadikin (Bandung)	1543	537	35.1
	1973		1509	492	32.6
	1974		767	262	27.1
	1975		1625	437	29.97
Napitupulu A	1978	RSUP (Medan)	1065	299	20.08
Hamid MD	1979	RS Dr. Pirngadi (Medan)	2983	1527	51.19
	1980		2173	1013	46.49
	1981		2445	1138	46.54
Marbun MD	1982	RS Dr. Pirngadi (Medan)	2350	954	40.60
Pasaribu S.	1983	RS. Dr. Pirngadi (Medan)	2868	1317	46.20
Loebis M S	1987	RS PTP IX (Medan)	1071	171	15.96
Author	1988	RS Tembakau Deli- (RS PTP IX) Medan	1339	183	13.67

### Conclusions

- In 1988, there were 183 (13.67%) infants and children with gastroenteritis admitted to the Pediatric ward of Tembakau Deli Hospital, Medan; the predominant age group was 0-1 year (46.4%).
- Males seemed slightly more than females but the sex ratio (male-female ratio) was not significantly different.
- May and October 1988 appeared as months where the peak number of patients occurred, and most of the patients had good nutritional status (76.51%).
- The predominant clinical symptoms were diarrhoea.
- The mortality rate of gastroenteritis alone was 0%, and gastroenteritis with severe complication was 2.18%. The total mortality rate was 2.18%.
- The morbidity and the mortality in this hospital were lower than in the other hospitals we mentioned because this hospital is a referral hospitals from hositals Dept. of plantations in North Sumatera/Aceh and the patients were followed up regularly at the outpatients clinics at the rural hospitals in North Sumatera and Aceh.

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