ORIGINAL ARTICLE

Rotavirus Gastroenteritis In Medan (Part Four)

by

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Abstract.

From April to May 1982, 59 children with gastroenteritis, aged 0 – 3 years (34 males and 25 females) had been examined for Rotavirus at the Department of Child School of Medicine, University of North Sumatera/Dr. Pirngadi General Hospital, Medan.

Rotavirus detection was done with the Elisa method. It was found that 32 patients (54,24%) had Rotavirus in their feces. The youngest patient was 2 days old.

Vomiting was more pronounced in the Rotavirus group. Degree of temperature did not differ significantly in both groups.

From the 32 Rotavirus patients, 71,81% was bottle fed and 28,12% breast fed. From the bottle fed infants with diarrhoea, there were 23 (79,31%) patients with Rotavirus. From the 21 breast fed patients with diarrchoea, there were only 9 (42,85%) infants with Rotavirus.

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Introduction

This is the fourth paper reporting the prevalence of Rotavirus enteritis among children with diarrhoea at the General Hospital in Medan.

In the first three reports (Djaman et al., 1979, Sjabaruddin et al., 1980; Rafita et al., 1980), it was found that 44 – 57% of all patients with enteritis under 3 years were caused by Rotavirus.

In Medan Rotavirus enteritis seems to be done of the main causes of gastroenteritis in children and infants.

This paper will further report the prevalence of Rotavirus enteritis among children with gantroenteritis in Medan.

Material and Methods.

This study was carried out on children in the age group of less than 3 years presenting with acute gastroenteritis in the outpatient and in-patient sections of the Department of Child Health, School of Medicine, University of North Sumatera/Dr. Pirngadi General Hospital Medan from April till May 1982.

Liquid feces (5 grams) were taken from patients before the fourth day of disease. It was filled into plastic pots and kept at 4 – 6° C. The examination was carried out at the most one month after specimen collection.

Rotavirus determination was done by the Elisa Method (Enzym Linked Immunosorbent Assay, Rotazym Roche), in the Provincial Health Laboratory in Medan.

Result.

The total patients examined were 59, i.e. 34 males and 25 females.

The results of fecal examinations showed Rotavirus in 32 patients (see table 1).

TABLE 1 : *Rotavirus in feces.*

Sex	Cases	Rotavirus			
		(+) ve	%	(–) ve	%
Male	34	19	55,89	15	44,11
Female	25	13	52	12	48
Total	59	32	54,24	27	45,76

Rotavirus infections was found in 54,24% of the cases of enteritis. The youngest patient was 2 days of age while the oldest was 27 months. Of these 32 Rotavirus patients, 27 (84,37%) were below one year of age, 31 cases (96,88%) were below 2 years. (see table 2).

TABLE 2 : *Distribution of age and sex.*

Age (month)	Male		Female	
	Rotavirus		Rotavirus	
	(+) ve	(–) ve	(+) ve	(–) ve
0 – 3	1	3	3	3
3 – 6	6	1	4	–
6 – 9	6	1	3	5
9 – 12	4	5	–	2
12 – 15	1	1	1	1
15 – 18	1	2	–	1
18 – 21	–	1	1	–
21 – 24	–	–	–	1
>24	–	–	1	–
Total	19	14	13	13

TABLE 3 : *Feeding*

Feeding	Cases	Rotavirus			
		(+) ve	%	(–) ve	%
Breast milk	21	9	42,85	12	57,15
Formula	29	23	79,31	6	20,69
Breast Milk + Formula	9	–	–	9	100
Total	59	32	54,24	27	45,76

$p < 0,05$

In table 3 we can see that patients solely on formula were suffering more from Rotavirus infections compared with those who got breast milk.

We also studied the onset of diarrhoea after breast feeding had been stopped, see table 4.

TABLE 4 : *Onset of Diarrhoea after weaning.*

Rotavirus patients	Diarrhoea				
	Still breast fed	One month after weaning	2 months after weaning	3 months after weaning	More than 3 months after weaning
(+) ve	9	6	4	3	10
(–) ve	12	5	1	2	7
Total	21	11	5	5	17

It is shown that from 38 children being weaned, 11 (30%) suffered from diarrhoeal diseases in the first month after weaning (weaning diarrhoea), and 6 out these 11 children with diarrhoea had Rotavirus enteritis.

TABLE 5 : *Cough*

Rotavirus patients	Cases	Cough			
		(+) ve	%	(–) ve	%
(+) ve	32	13	40,63	19	59,37
(–) ve	27	13	48,15	14	51,85
Total	59	26	44,07	33	55,93

$p > 0,05$

In table 5 we can see that there is no significant difference between the presentage of Rotavirus patients and non Rotavirus patients, with cough, at the time of investigation.

Vomiting

Excessive vomiting was more frequently observed in the Rotavirus patients ($p < 0,05$), see table 6.

TABLE 6 : *Vomiting.*

Rotavirus	Cases	Vomiting			
		(+) ve	%	(–) ve	%
(+) ve	32	24	75	8	25
(–) ve	27	12	44,44	15	55,56
Total	59	36	61,02	23	38,98

Of the 32 cases of Rotavirus diarrhoea, 26 were in-patients so that the ratio of out-patients was 6 : 26.

In the non Rotavirus patients the ratio was 10 to 17 (table 7).

TABLE 7 : *The Rotavirus and non Rotavirus patients in out-patients and in-patients*

Rotavirus	Cases	Out-patients	In-patients
(+) ve	32	6	26
(–) ve	27	10	17
TOTAL	59	16	43

$p > 0,05$

TABLE 8 : *Duration of illness in Rotavirus and non Rotavirus patients.*

Rotavirus	Cases	Duration of disease (days)	Mean (days)
(+) ve	32	2 – 8	2,9
(–) ve	27	2 – 18	3,5

In Table 8 it can be seen that the period of illness of Rotavirus diarrhoea ranges between 2 to 8 days with a mean of 2,9 days.
The duration of illness of non Rotavirus diarrhoea is 2 to 18 days with a mean of 3,5 days.

Isolation rate of Rotavirus is highest on the second day and third day of disease (Table 9.).

TABLE 9 : *Isolation rate of Rotavirus*

Day	Rotavirus (+) ve		Rotavirus (–) ve	
	Cases	%	Cases	%
1	3	9,38	1	3,70
2	17	53,13	11	40,75
3	7	21,88	9	33,33
4	5	15,62	6	22,22

TABLE 10 : *Clinical symptoms of Rotavirus patients*

Symptoms	Rotavirus (+) ve		Rotavirus (–) ve	
	Cases	%	Cases	%
Diarrhoea	32	100	27	100
Dehydration	32	100	27	100
Fever	26	81	23	85,18
Vomiting	24	75	13	48,14
Cough	13	40	14	51,85
Hyperamic throat	6	18	–	–
Rhinitis	4	12,50	7	25,15
Convulsion	1	3,13	3	11,11

In table 10 we can see that 70% of Rotavirus patients had upper respiratory infections (cough, hyperemic throat, rhinitis) compared with 77% in the non Rotavirus group.

Discussion.

This study shows that a large proportion (54,24%) of pediatric gastroenteritis under 3 years of age in Medan is caused by Rotavirus.

Patients who are breast fed, either solely or in combination with formula had a lower prevalence of Rotavirus enteritis (9 out of 30) compared with patients solely on formula (23 out of 29).

We found no male preponderance in the Rotavirus group as reported by Smith, J.W. (1978).

Taken together with the three previous studies on Rotavirus enteritis in Medan, we find that out of 125 patients 120 were below 2 years old. Out of these 120 cases 59 (49,17%). were Rotavirus positive (table 11).

TABLE 11 : *Rotavirus gastroentiritis in children below 2 years at the Department of Child Health, Dr. Pirngadi General Hospital Medan.*

REPORT	Time of Examination	Total cases	Gastroenteritis		
			Age < 2 years		
			Total	Rv (+) ve	%
I.	September 1979	21	18	12	66,6
II.	Des 79 – Jan 80	26	26	8	28,6
III.	April 80 – Jun 80	19	18	8	44,4
IV.	April 82 – Mei 82	59	58	31	53,44
		125	120	59	49,17

Conclusion.

From 59 gastroenteritis patients below 3 years of age at the Dr. Pirngadi General Hospital, Medan during the period of April to May 1982, 32 or 54,24% was caused by Rotavirus.

There was no statistical difference in the sex incidence.

Acknowledgement.

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