

## ORIGINAL ARTICLE

# Bacillary Dysentery in Children Below Five Years of Age at the General Hospital, Manado

by

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### Abstracts

Forty-six children below five years of age, diagnosed as having Bacillary Dysentery, were admitted to the Department of Child Health, Medical School, University of Sam Ratulangi/Gunung Wenang General Hospital, Manado, during the period from July 1974 through June 1976. The majority of cases (89.2%) were below two years old, the youngest being 5 days of age. The main complaints when hospitalized were diarrhea (91.3%) and fever (76.1%).

For treatment, rehydration and a combination of Tetracycline and Kanamycin were used. The average length of hospitalization was 8.7 days. All of the patients recovered.

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### Introduction

Bacteria of the genus *Shigella*, when ingested by man, can cause a spectrum of clinical illnesses including asymptomatic infection, diarrhea without fever, toxemia, chills, convulsions (especially in children), tenesmus and bloody mucoid stools.

Strictly speaking, dysentery refers to the presence of blood and mucus in stools of which *Shigella* infection is an important cause. However, Bacillary Dysentery has become synonymous with Shigellosis in any of its clinical patterns (Levine, 1979).

It is typically spread by contact with infected hands (Levine, 1979; Smith, 1975; Tjahjadi et al., 1968). Transmission by contaminated food and water also occurs but is much less frequent (Levine, 1979).

*Shigella* shows variations in sensitivity to different kinds of antibiotics (Kempe et al., 1972) and this brings about a problem in the treatment of the disease.

This article is intended to describe a clinical presentation of Bacillary Dysen-

tery in children below five years and the results of a combined treatment using Tetracycline and Kanamycin.

### Material and methods

From July 1974 through June 1976, 46 patients below five years of age were admitted to the Department of Child Health, Medical School, University of Sam Ratulangi/Gunung Wenang General Hospital, and were diagnosed as having Bacillary Dysentery. Within this period, 2,964 patients were admitted to the Department, 691 of whom had gastroenteritis, including 46 children below five years old having Bacillary Dysentery.

The diagnosis was based on the patient's gastrointestinal complaints such as diarrhea, bloody stools, mucoid stools vomiting and fever in different combinations, accompanied by *Shigella* positive stools.

The patients were treated with 25 - 50 mg Tetracycline/kg body weight/day, each was divided into four doses for 5 - 10 days. Treatment for dehydration was also administered.

TABLE 1: Distribution according to age and sex

Age/sex	Female	Male	Total	%
Less than 6 months	5	5	10	21.8
6 — 12 months	4	11	15	32.6
12 — 24 months	9	7	16	34.8
24 — 60 months	0	5	5	10.8
T o t a l	18	28	46	100%

### Results

Of 691 patients with gastroenteritis, 46 (6.6%) were children below five years old having Bacillary Dysentery. Distribution according to age and sex can be

seen in table 1. The youngest was a neonate, five days of age.

Stool cultures showed the presence of *Shigella Flexneri* in 46, *Sonnei* in 10, and *Shiga* in 4 patients (Table 2).

TABLE 2: Results of stool culture in 46 children below 5 years old

<i>Shigella</i>	Flexneri	Sonnei	Shiga
Flexneri only	36	—	—
Flexneri + Sonnei	6	6	—
Flexneri + Sonnei + Shiga	4	4	4
Total	46 (100%)	10 (21.8%)	4 (8.7%)

The main complaints of the patients during the period of treatment were diarrhea (91.3%) and fever (76.1%). Other complaints were vomiting (47.8%), cough (26.1%), mucoid stools (23.9%),

convulsions (15.2%) and bloody stools (10.9%). (Table 3).

The average duration of fever and diarrhea before hospitalization was 2.7 and 2.2 days respectively, whereas du-

TABLE 3: Complaints during treatment

Complaints	Female	Male	Total	%
Diarrhea	17	25	42	91.3%
Fever	13	22	35	76.1%
Vomiting	9	13	22	47.8%
Cough	5	7	12	26.1%
Mucoid stools	4	7	11	23.9%
Convulsions	2	5	7	15.2%
Bloody stools	1	4	5	10.9%

ring hospitalization the symptoms disappeared after 5.7 and 5.8 days respectively (Table 4).

Anemia (Hb < 10 gram%) was found in 10 cases (21.7%), whereas leu-

cocytosis (> 10,000/mm<sup>3</sup>) was found in 14 cases (30.4%).

The presence of leucocytes in stools (> 10/low power field) was found in 20 cases (43.5%). Other accompanying con-

TABLE 4: Average duration of fever and diarrhea

Duration/complaints	Fever	Diarrhea
Before hospitalization	2.7 days	2.2 days
During hospitalization	5.7 days	5.8 days

dition were acute middle ear infection in 5 (15.2%), bronchopneumonia in 4 (10.9%), decline in consciousness in 4 (10.9%), severe meteorism in 2 (5.4%) and encephalitis in one case (2.7%). The average length of treatment was 8.7 days and the mortality rate was 0%.

### Discussion

Shigellosis in Indonesia was mostly brought about by *Shigella Flexneri* as reported by Lie et al., 1966, Tjahjadi et al., 1968, and Sunoto et al., 1979. This was also found in the 46 cases of Shigellosis in this report (Table 2); 100% was caused by *Shigella Flexneri*, of which 21% was in combination with *Shigella Sonnei*, and 8.7% was in combination with both *Shigella Shiga* and *Sonnei*.

The youngest patient was a neonate of 5 days of age. They could occur because the incubation period of Shigellosis is 1-3 days (Smith, 1975). Most of the cases (89.1%) were found to be below two years (Table 1). This agrees with the findings reported by Tjahjadi et al., 1968.

The types of symptoms encountered such as diarrhea (93.1%), fever (76.1%),

and vomiting (47.8%) were almost the same as these found by Weissman et al., 1972, namely diarrhea 87%, fever 63%, and vomiting 35%. Donald et al., 1956, found convulsions in 45% of the cases, whereas Smith, 1975, found this symptom in 10% of the cases, which does not differ significantly from the findings of this research (15.2%). Smith, 1975, found cough symptoms in 25% of the cases, whereas the findings of this research is 26.1%

Harris et al., 1972, stated that the presence of leucocytes in the stools of older children and adults is an indication of *Shigella* infection, whereas Levine, 1979, stated that this situation does not help much in establishing the diagnosis of Shigellosis in infants compared with that in older children and adults.

From the stool examinations in this research, leucocytes of more than 10/low power field were found in 43.5% of the cases.

Treatment using a combination of oral Tetracycline and Kanamycin resulted in a mortality rate of 0%. Donald et al., 1956, found a mortality rate of 6.7%, whereas Smith, 1975, found less than 1%.

Sensitivity	Shigella Flexneri	Shigella Sonnei
Tetracycline	100%	14.2 %
Kanamycin	0%	100 %

Kitamoto, 1960, stated that Kanamycin was effective for the treatment of Shigellosis. The dose recommended was 60 - 100 mg/kg body weight/24 hours, divided in four doses; it will be more effective if Kanamycin is combined with Chloromycetine or Tetracycline.

Lie et al., 1966, found that 90% of Shigella was sensitive to Tetracycline and

Kanamycin, whereas Sunoto et al., 1979, found the above data.

The table above indicates that treatment using a combination of Tetracycline and Kanamycin can kill all Shigella Flexneri and Sonnei. In this research, all the cases treated with a combination of Tetracycline and Kanamycin, recovered.

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