

## Carrier state of Typhoid fever patient after treatment with chloramphenicol

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### Abstrak

- Objektif** : mengetahui angka karier dari pasien demam tifoid setelah diterapi dengan khloramfemkol (karier pasca terapi).  
**Desain** : survei tanpa kontrol.  
**Tempat penelitian** : Bagian ilmu Penyakit Dalam Rumah Sakit Umum Palembang.  
**Penderita** : 30 orang penderita demam tifoid dengan biakan Salmonella positif.  
**Intervensi** : pemberian khloramfenikol 4 x 500 mg per oral selama 14 hari.  
**Pemeriksaan ulang** : biakan kuman Salmonella dari darah dan feces pada hari 15 (setelah terapi dihentikan).  
**Hasil** :  
 - umur penderita rata-rata  $23,9 \pm 9,9$  tahun  
 - lama demam sebelum dirawat di rumah sakit  $6,8 \pm 1,8$  hari  
 - rata-rata suhu badan waktu masuk rumah sakit  $38,7 \pm 0,7^{\circ}\text{C}$   
 - demam menghilang pada hari  $4,7 \pm 1,0$  setelah terapi dimulai  
 - setelah terapi, 30 penderita tidak lagi mengandung Salmonella dalam biakan fesesnya (100 %)  
**Kesimpulan** : tidak ditemukan karier pasca terapi pada penderita demam tifoid setelah diterapi dengan khloramfenikol

### Abstract

- Objective** : to know the incidence of carrier state of typhoid patient after treatment with Chlomphenicol (Post therapy carrier)  
**Design** : Uncontrolled survey.  
**Setting** : Department of Internal Medicine General Hospital of Palembang  
**Patients** : 30 patients with positive Salmonella culture.  
**Intervention** : Chloramphenicol 4 x 500 mg per oral for two weeks.  
**Measurements** : Reculture of Salmonella from blood and stool on day 15 (after cessation of the treatment)  
**Results** :  
 - Mean of age was  $23.9 \pm 9.9$  years  
 - Length of fever before admission was  $6.8 \pm 1.8$  days  
 - Average of body temperature on admission was  $38.7 \pm 0.7^{\circ}\text{C}$   
 - Fever disappeared on day  $4.7 \pm 1.0$  from the beginning of the treatment  
 - After treatment, the total number of negative results of Salmonella culture were 30 of thirty patients observed (100%)  
**Conclusion** : There was not any post therapy carrier among the typhoid patients we observed, after treatment with chloramphenicol.

### INTRODUCTION

Typhoid fever (TF) is still widespread and continues to be a global health problem, especially in developing countries. It's incidence is high in countries where there is neither a safe water supply nor adequate sanitation and spreads through contamination of food and water<sup>1,2</sup>. The incidence of typhoid fever in Indonesia is estimated about 360–810 cases per 100.000 population per year<sup>3</sup>. In General Hospital of

Palembang, TF is still a common disease for which patients are admitted to Dept.of Internal Medicine ward.

Typhoid carrier is the ultimate source of infection, however it still remains a problem to be detected. Transmission of *S.typhi* in faeces is more important than transmission of this organism in urine. In connection with the therapy, typhoid carrier can be divided into 3 type:<sup>4</sup>

Immediate Post therapy Carrier; excretion of *S.typhi* occurs within first week after treatment.

Transient Carrier; excretion of *S.typhi* within one month after treatment.

Convalescent Carrier; excretion of *S.typhi* within 2–12 month after treatment.

Chloramphenicol is still drug of choice in the treatment of Typhoid fever, and in Indonesia this drug is used widely, especially throughout the Primary Public Health Centre. In 10% cases, Chloramphenicol does not sterilize patient's stool, thus contributing to the endemic nature of the disease<sup>2</sup>. Furthermore, the emergence of *S.typhi* Chloramphenicol-resistant strains in some area makes the therapy of this infection much more difficult<sup>2,5,6</sup>. Based on this point of view, there would arise an assumption that the incidence of typhoid carrier will be increase. Therefore, to know incidence (the existence and magnitude) of the immediate post therapy carrier in our limited circumstances, we performed this study.

## MATERIALS AND METHODS

Thirty patients (14 men and 16 women, aged 13 to 60 years) suffering from typhoid fever, who were admitted to Dept. of Internal Medicine, General Hospital of Palembang, from January 1, 1995 to September 30, 1995 participated in the study. The diagnosis of typhoid fever was made when blood culture were positive for *S.typhi*. All patients were treated with chloramphenicol per oral 4 x 500 mg daily for two weeks. All patients had a complete physical examination daily and clinical conditions were recorded well. After completion of the treatment, blood cultures were repeated again. Then, to make the diagnosis of immediate post therapy carrier, we performed only stool cultures, which was obtained by doing rectal swab and collected for three consecutive days.

## RESULTS

### Basic characteristic

**Table 1.** Characteristics of Typhoid fever patients

Variables	Mean ± SD	Range
1. Age (years)	23.9 ± 9.9	13 – 60
2. Height (cm)	159.6 ± 8.6	147 – 182
3. Weight (kg)	47.8 ± 6.9	30 – 61
4. Sex	No. of Men (%)	No. of Women (%)
	14 (46.7)	16 (53.3)

### Clinical presentation

**Table 2.** Mean and range of length of fever, defervescence, body temperature of Typhoid fever patients

Variable	Mean ± SD	Range
1. Length of fever (day) before admission	6.8 ± 1.8	5 – 12
2. Body temperature (°C) on admission	38.7 ± 0.7	37.8 – 40.6
3. Defervescence (day)	4.7 ± 1.0	3 – 7

### Microbiologic

**Table 3.** Results of blood cultures of typhoid patients before and after treatment with chloramphenicol

Specimen	Before treatment <Number (%) of culture>		After treatment <Number (%) of culture>	
	positive	negative	positif	negative
Blood	30 (100)	0	0	30 (100)

**Table 4.** Result of stool cultures after treatment with chloramphenicol

Result	Number (%) of Culture		
	I	II	III
1. Positive	0 (0)	0 (0)	0 (0)
2. Negative	30 (100)	30 (100)	30 (100)

## DISCUSSION

As we have mentioned earlier, in connection with therapy, typhoid carrier can be divided into 3 types. One of them is immediate post therapy carrier, which excretes *Salmonella typhi* within one week after treatment. In our study we observed this type of typhoid carrier, because it is easier to control them in hospital setting.

Until now chloramphenicol remains as drug of choice in treating typhoid fever, but on the other hand chloramphenicol-resistant *Salmonella typhi* has appeared from time to time. Base on this view point, we performed this limited study to know the existence and magnitude of typhoid carrier. Thirty patients participated in this study, consisting of 14 men (46.7%) and 16 women (53.3%), aged 13 – 60 years.

In our study we found that length of fever before admission was  $6.8 \pm 1.8$  days (range 5 – 12 days) and defervescence was  $4.7 \pm 1.0$  days (range 3 – 7 days). Our finding of these two variable did not differ so far with other investigators. Nelwan in his comparative study (chloramphenicol vs ofloxacin), for chloramphenicol group: Length of fever was 9.2 days (range 5 – 21 days), defervescence was 4.4 days (range 2 – 6 days)<sup>7</sup>. Soewandojo found that defervescence was  $3.82 \pm 1.70$  days in chloramphenicol group<sup>8</sup>. Morelli also found that defervescence was 3.5 days (range 2 – 5 days)<sup>2</sup>.

There wasn't any post therapy carrier found in our study, but in another study, Nelwan found 1 carrier out of 23 chloramphenicol-treated patients<sup>7</sup>. Soewandojo found 1 carrier out of 17 chloramphenicol-treated patients<sup>8</sup>. Morelli found 4 carriers out of 30 chloramphenicol-treated patients<sup>2</sup>. These differences of findings among those studies might be caused by the difference of methodology.

## CONCLUSION

In this limited study, we didn't find any post therapy carrier after treatment with chloramphenicol.

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