

[Original Paper]

Raising patient compliance in pharmacotherapy of tuberculosis by DOTS program in the Ai-rin district of Osaka

Yuriko Yamashina*, Mariko Shibata* and Sumi Ogura**

*Aino Gakuin College

**Osaka Social Medical Center

Abstract

The morbidity rate of lung tuberculosis of Osaka City inhabitants is extraordinary high, compared with that of national average. The major reason for this is that the Ai-rin district of Osaka City has many day laborers who come from all areas of Japan.

For better prevention strategy against tuberculosis, Osaka City Authorities adopted new fundamental guidelines using the WHO DOTS (Directly Observed Treatment, Short Course, WHO) program, from 1999.

In the Ai-rin district of Osaka City, the DOTS program was applied to 22 patients from September 1999 on a voluntary basis, with a high success rate (86.4%). This compliance rate is almost the same as that obtained in Tokyo. Moreover, among 22 cases, six cases had histories of interruption of tuberculosis treatment prior to DOTS program but five successfully completed the program. These findings point to the effectiveness of the DOTS program for continuation and to prevention of interruption of tuberculosis treatment.

Key words : tuberculosis, DOTS, Ai-rin district, Osaka, treatment

Introduction

The morbidity rate of lung tuberculosis of Osaka City inhabitants is extraordinarily high, compared with the national average. The number of newly registered lung tuberculosis patients did decrease gradually over the last two decades until 1995. However, from 1996, the morbidity (rate) of lung tuberculosis began to rise again, with the number of newly registered patients being 2,792 in 2000 and the morbidity (rate) per 100,000 in Osaka City increasing to 107.7 in 1999. This is about 3.2 times the national average level of 32.4 in 1999. The major reason for this is that the Ai-rin district of Osaka City has many day laborers who come from all areas of Japan. Many have no homes because they are out of work due to the economic depression and suffer from diseases and old age. Osaka City has two public health centers which had high morbidity rates due to tuberculosis in 1999 of 534.6 for the Nishinari Public Health Center and 242.9 for the Naniwa Public Health Center. Therefore, the morbidity rate of tuberculosis in Osaka City, excluding tuberculosis patients not hospitalized was 89.8 (1999), corresponding to 2.6 times of the national level (1999).

For better prevention strategy against tuberculosis, Osaka City Authorities adopted new fundamental guidelines using the WHO DOTS (Directly Observed Treatment, Short Course) program, from 1999. In this medication procedure, patients are observed by a third person who checks that the patient actually takes the medicine prescribed.

One major problem of anti-tuberculosis treatment in the Ai-rin district is the high interruption rate of 20%, compared with the rate of 6.2% for the general population of Osaka. To reduce the interruption rate, the DOTS program with observation by nurses was adopted. The effectiveness of the program is examined here.

Materials and methods

Twenty-four patients were treated under the DOTS program, including welfare recipients, outpatients of Osaka Social Medical Center (social welfare corporation) and patients diagnosed during mass examinations for tuberculosis in the Ai-rin district. DOTS treatment was explained and informed consent was obtained. The committee members selected the patients for the DOTS program on the basis of their treatment history, symptoms and course of illness. In the procedure, medicine was given once a day between 2:00 to 4:00 in the afternoon from Monday to Friday under observation by a nurse. On Saturdays, Sundays and holidays, the patients were asked to take the medication themselves. The patient usually came to the out-patient clinics of the social medical center and swallowed the medicine under the observation by a 2 DOTS nurse. They were then given a nutritious drink and lunch (once a week) as an incentive.

The DOTS program started in Osaka City from Sept. 27, 1999. On March 31, 2001, 24 patients were enrolled in the program. These patients completed the program at the end of September 2001.

Results

The results obtained from the treatment with the DOTS program are shown in table 1. Among the 24 patients treated under the DOTS program, two were excluded from the results, because they were admitted to a hospital or temporarily moved to a protective institution.

Table 1 Results of DOTS program results

DOTS Program	First Treatment	Second Treatment (with Interruption)	Total
Completed	10	9 (5)	19
Interrupted	0	3 (1)	3
Total	10	12 (6)	22

1. The remaining 22 patients were males, 45 to 75 years with the average age being 59.2.
2. Among the 22 patients, treatment with the DOTS program was carried out for 19 patients (86.4%). Of these 19 cases, 10 were first-treatment cases while 9 had been treated previously. Among the nine cases, five had a history of interrupted treatment.
3. Among the total 22 patients, only 3 (13.6%) interrupted the DOTS program. Of these three cases, one had interrupted treatment previously.
4. Among the total 22 cases, 10 (45.5%) were first-time treatment and no interruption occurred.
5. Among the 22 cases, 12 (54.5%) had had a treatment history prior to the DOTS program and 6 of these cases (27.2%) had an interruption history.

The DOTS program enabled five of these six patients to successfully complete the medication procedure.

Next, we compared the interruption rates of two DOTS nurse groups, group A of 16 patients cared for by nurse A and group B of 8 patients by nurse B. Interruption occurred in one case in group A (6.3%) and in two cases in group B (25.0%). While the groups are too small to judge, successful completion of the program may be influenced

to some extent by the nurse in charge.

Observation of the behavior change of the patients in the DOTS program showed that eight patients (36.4%) began to communicate with the DOTS nurses, with five talking about their past history, job background, and personal experiences. Communication between the patients and the nurses seems to play an important role in successful treatment.

Discussion

The DOTS program was adopted as an antituberculous policy in the United States in New York and found to raise the success rate of tuberculosis treatment from 31% to 77% in 1995. Therefore, WHO recommended the DOTS program on a global scale. According to a 1998 WHO report, the DOTS program has been adopted in 96 countries among the 181 in the world. The success rate of patients under the DOTS program was 75%, compared with the 45% for those not under this program in 1995. Consequently, the morbidity rate of lung tuberculosis decreased in 96 countries (1998).

In Japan, the DOTS program has been adopted in the San-ya district with favorable results of 85% compliance. In Yokohama City (2001), the success rate of the DOTS program was 90.9%. Such high rates are achieved by support from the medical team, public health center team and social welfare staff.

In the Ai-rin district of Osaka City, the DOTS program was applied to 22 patients from September 1999 on a voluntary basis, with a high success rate (86.4%). This compliance rate is almost the same as that obtained in Tokyo. Moreover, among the 22 cases, 6 cases had histories of interruption of tuberculosis treatment prior to the DOTS program but 5 successfully completed the program. These findings point to the effectiveness of the DOTS program for continuation and prevention of interruption of tuberculosis treatment.

One finding was that the patients who try to communicate with the DOTS nurses were more successful than those who did not. Thus, one important factor for success seems to be the attitude of the DOTS nurse toward communication with the patient. Matsuki (2000) reported that reliability and communication between the medical staff and the patient are needed for successful DOTS treatment and for preventing treatment interruption. We suggest that the DOTS program can be thought of as one that promotes the formation of human bonds.

In conclusion, in order to prevent lung tuberculosis, especially by continuing long-term medical treatment, the DOTS program is recommended. More work needs to be done on the rate of DOTS nurses.

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〔原 著〕

あいりん地区における結核治療継続のための DOTS の効用

山 科 百合子*，柴 田 真理子*，小 倉 寿 美**

【要 旨】 大阪市は日本一結核の罹患率の高い都市と言われている。ことに、日雇い労働者の多く集まるあいりん地区の結核罹患率は10万人あたり1,636.7と全国平均の47倍の高率である。その対策として、大阪市はあいりん地区の結核患者を対象に、継続治療のためDOTS（直接服薬確認による短期化学療法）を採用し、治療の中断を防ぐことにした。その結果、平成13年3月末日、DOTS療法を初めて行った22名のうち、平成13年9月末日にDOTS療法を完了した者は19名（86.4%）で、中断したものは3名（13.7%）であった。この値は、東京、川崎などとはほぼ同じ数値であった。なお、これら22名のうち、過去に結核治療の中断歴のあるものは6例で、そのうちDOTSを中断したものは僅か1例にすぎず、残りの5例はDOTSを完了した。これらの事実から、DOTSが継続的な結核治療として有効なものであることがわかった。なお、DOTSの成功率の高い患者は、受診時に自分の経歴や、身の上話をしていく者が多く、このことはDOTSナースの存在がDOTS治療のために必要であることを示唆していた。

キーワード：結核，DOTS，あいりん地区，大阪

* 藍野学院短期大学 専攻科
** 大阪社会医療センター