NUMBER OF CONCENTRATED SPUTUM SMEARS NEEDED TO ADEQUATELY ASSESS INFECTIVITY OF PATIENTS WITH PULMONARY TUBERCULOSIS

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Abstract [Purpose] Investigating the usefulness of 3rd concentrated sputum smear for assessments of infectivity of pulmonary tuberculosis patients.

[Object and Method] Retrospective study of the results of diagnostic 3 consecutive concentrated-sputum-smear (fluorochrome stain) of culture-proven pulmonary tuberculosis cases at our hospital from Jan. 2002 to Sep. 2003.

[Result] Altogether 362 cases were available for analysis, and 306 (84.0%) cases were smear-positive on 3 consecutive sputum tests. Of these cases, 26 cases (8.6% of smear-positive cases) were firstly smear-positive by the 3rd sputum. Of 278 cases that were already smear-positive at first and/or second sputum smear, 40 cases (13.2% of smear-positive cases) showed the highest smear-positive grade at 3rd sputum-smear, but only 6 cases (2.0% of smear-positive cases) had smear-positive grade higher by two-grade (± to more than 2+, or 1+ to 3+).

[Conclusion] From the results of this study together with literature review, sensitivity of 2 concentrated sputum-smear tests by fluorochrome stain is presumed to be same as, or better than that of 3 direct sputum-smear tests by Ziehl-Neelsen stain. We have to re-consider the number of concentrated sputum smear tests needed to assess the infectivity of pulmonary tuberculosis.

Key words: Pulmonary tuberculosis, Infectivity, Sputum, Concentrated smear, Smear test

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Original Article

TWICE-WEEKLY INTERMITTENT CHEMOTHERAPY DURING THE MAINTENANCE PHASE OF THE SHORT-COURSE TREATMENT FOR NEW PATIENTS WITH PULMONARY TUBERCULOSIS

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Abstract [Background and Objective] Various types of intermittent chemotherapy regimens have been applied for the treatment of tuberculosis worldwide, but, in Japan, any type of intermittent treatment has not been adopted currently as the standard regimens for the treatment of tuberculosis. Intermittent regimens have a great advantage to facilitate directly observed therapy (DOT). To introduce DOT more extensively in Japan, we conducted the present clinical trial to assess the effectiveness and safety of intermittent chemotherapy.

[Patients and Methods] This is a non-randomized trial to compare twice-weekly intermittent therapy under DOT with daily therapy by self-administration. Newly diagnosed patients with pulmonary tuberculosis who completed the initial intensified phase of 2 months with 4 drugs were enrolled. Supervision of drug administration was carried out by the pharmacists who cooperated to the study (Pharmacy DOT).

[Results] Total 385 patients were enrolled in this trial, of which 135 patients were treated by twice-weekly intermittent maintenance chemotherapy under the supervision by pharmacists and remaining 250 patients were treated by daily maintenance chemotherapy without supervision (self-administration). Treatment success-rates were 97.6% for intermittent treatment group and 95.6% for daily treatment group. Relapse rates after the completion of the treatment course were 3.73/100 person-year and 1.76/100 person-year, respectively. The difference between the two groups was not statistically significant. Adverse events required the modification of treatment schedule occurred only in 0.2% of the intermittently treated patients.

[Conclusions] After the successful completion of the initial intensified phase of tuberculosis chemotherapy, twice-weekly intermittent chemotherapy during the maintenance phase under the supervision by pharmacist is as effective and safe as the daily therapy, and is conveniently accepted by the patients. The pharmacy DOT with the intermittent therapy during maintenance phase adopted in this trial, should be widely introduced in Japan.

Key words: Chemotherapy for tuberculosis, Intermittent treatment during continuation phase, Directly observed treatment, Supervision by pharmacist, Adverse events, Relapse rate

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Original Article

CLINICAL REVIEW OF PATIENTS WITH PULMONARY TUBERCULOSIS WHO WERE DETECTED BY THE SCREENING OF HOMELESS PERSONS ADMITTED IN THE SHELTER FACILITIES

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Abstract [Purpose and Methods] There has been a recent increase in the number of non-profit facilities that provide shelter for the homeless. These social service facilities aim to assist the social rehabilitation of homeless persons. The Public Health Center of Chiba City screened 1,054 residents of these homeless shelters between November 2002 and August 2004 and found 17 individuals (1.6%) with active pulmonary tuberculosis. We clinically reviewed these cases.

[Results] All 17 individuals were male, and their ages ranged from 44 to 70 years (mean 54.9 years). Four cases were smear positive and three cases were smear negative but culture positive by sputum examination for acid-fast bacilli. Nine cases had cavitary lesions on chest X-ray. There were three cases complicated with hepatitis C, two cases with diabetes mellitus and two cases with past history of gastrectomy. Of the 17 individuals, 13 were treated as inpatients, and four as outpatients. The mean hospitalization duration was 146.7 days excluding two patients who were discharged by themselves. Of the 11 inpatients, four remained hospitalized until the completion of treatment. Final outcome of the treatment was the following; 12 patients were cured, while five patients dropped out or discontinued treatment.

[Conclusion] The screening performed by the Public Health Center of Chiba City revealed a very high prevalence of tuberculosis among shelter residents. Thus, in the future, public health centers and medical institutions must work in collaboration to actively screen and provide treatment for residents of homeless shelters. This study also revealed that in spite of recommended hospitalization or long-term treatment, patients often self-discharged or discontinued regular outpatient treatment. Health centers and other public agencies must therefore work in close cooperation to help the homeless to continue hospitalization and subsequent medication and treatment even after their discharge from hospital.

Key words: Tuberculosis, Homeless, Shelter, Screening, High risk group

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THREE CASES OF TUBERCULOSIS CHILDREN WHO DEMONSTRATED PARADOXICAL WORSENING DURING DIFFERENT STAGE OF TREATMENT

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Abstract We report three tuberculosis children aged seven-month-old to 11-year-old who had paradoxical worsening of tuberculosis of lung and lymph nodes, lymph nodes, and intracranial tuberculoma at different treatment stages. In these children, paradoxical worsening occurred at about 14 days after start of anti-tuberculosis treatment, about six months after the start, and about three months after the completion of treatment. No alteration was done in the method of anti-tuberculosis treatment against expanding lesions, and predonisolone was prescribed in two subjects. Expanded lesions then improved one- to five-months later. The mechanisms of paradoxical worsening is unclear. However, these cases suggest that paradoxical worsening may occur at any time after starting anti-tuberculosis treatment based on interaction between the microbial factors and host immunological factors in lung, lymph nodes, intracranial tuberculosis lesions.

Key words: Childhood tuberculosis, Paradoxical worsening, Delayed-type hypersensitivity, Pulmonary tuberculosis, Lymphonode tuberculosis, Intracranial tuberculosis

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Case Report

FOUR CASES OF OTITIS MEDIA TUBERCULOSA

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Abstract Otitis media is a rare involvement among extrapulmonary tuberculosis. We reported 4 cases of otitis media tuberculosa, and their mean age was 28.3 (ranging 20 to 37). Three of them were complicated with pulmonary tuberculosis. Since it takes several months to establish definite diagnosis, such cases could have high risk in spreading tuberculosis. Examinations of acid-fast bacilli by smear and culture, histopathological examinations and in particular polymerase chain reaction are most useful for the early diagnosis. Delay in the administration of antituberculosis drugs may cause the difficulty in hearing, and surgical treatment is needed in some cases.

Key words: Otitis media tuberculosa, Pulmonary tuberculosis, Extrapulmonary tuberculosis, Polymerase chain reaction (PCR), Thrombophlebitis

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