A DRG/PPS SIMULATION IN THE MEDICAL CARE OF TUBERCULOSIS

[1]Katsuyuki TOBISE, [2]Mamoru MIYAIRI, [3]Yasuhiro YAMAZAKI, [4]Shinobu WAGA, [5]Shimao FUKAI, [6]Fumio YAMAGISHI, [7]Toshiaki TSUCHIYA, [8]Hideki YOTSUMOTO, [9]Masao TANO, [10]Osamu NISHIMURA, [11]Takuya KURASAWA, [12]Kouji SAGAMI, [13]Hiroshi UEOKA, [14]Kazutaka NISHIMURA, [15]Michio UENO, [16]Teruaki MORI, [17]Seiji ISHIKAWA, and [18]Mitsunori SAKATANI

Abstract [Purpose] To study the expected usefulness of the introduction of the DRG-PPS (Diagnosis-Related Group/Prospective Payment System, in which an insurer pays a fixed medical fee per hospitalization) into the current medical care of tuberculosis (TB) in Japan.

[Method] The medical fees were reviewed for all TB inpatients at 19 hospitals under the National Hospita1 Organization who were discharged in either June 2007 or February 2008. The sum of the fixed fee by the DRG was assumed based on the bivariate regression analysis of each patient's hospital days and his or her total actual fees during the hospital stay under the current (fee for care) system, since it was difficult to directly calculate the daily fees for every patient that would be the basis of DRG-PPS.

[Results] Linear regression analysis estimated that the medical fees (including fees for the medical examinations and the treatments) for a hospital stay of 60 days, which is the standard for TB treatment, was ¥1,192,470 (¥19,870 per person per day) in June 2007, and ¥1,167,600 (¥19,460 per person per day) in February 2008.

[Discussion] If we assume an average medical fee of about ¥1.1−1.2 million for the standard hospital care of TB, the economic balance of the hospitals is negative, with a deficit of ¥0.6−0.7 million, given the estimated expenses of ¥1.8 million (i.e., ¥30,000 per person per day × 60 days).

[Conclusion] If the DRG-PPS is to be implemented based on the current medical fee rating system, the hospital administrators could not accept its introduction to the TB medical care service as it is, because it may undermine the economic management of hospitals.

Key words: DRG/PPS, Linear regression analysis, Medical insurance fee

[1]National Hospital Organization (NHO) Sapporo Minami National Hospital, [2]NHO Minami Yokohama National Hospital, [3]NHO Dohoku National Hospital, [4]NHO Aomori National Hospital, [5]NHO Ibarakihigashi National Hospital, [6]NHO Chiba-East National Hospital, [7]NHO Nishi-Niigata Chuo National Hospital, [8]NHO Tokyo National Hospital, [9]NHO Higashi Nagoya National Hospital, [10]NHO Wakayama National Hospital, [11]NHO Minamikyoto National Hospital, [12]NHO Higashihiroshima Medical Center, [13]NHO Yamaguchi-Ube Medical Center, [14]NHO Ehime National Hospital, [15]NHO Fukuoka-Higashi Medical Center, [16]NHO Nishibeppu National Hospital, [17]NHO Okinawa National Hospital, [18]NHO Kinki-Chuo Chest Medical Center

Correspondence to: Katsuyuki Tobise, National Hospital Organization Sapporo Minami National Hospital, 1814 Shirakawa, Minami-ku, Sapporo-shi, Hokkaido 061−2276 Japan.
(E-mail: tobise@a1.mbn.or.jp)

Original Article

THE CHANGES OF HOSPITALIZATION IN OUR TUBERCULOUS WARD AFTER NEW DISCHARGE CRITERIA

Fumie MISHIMA, Shuichi YANO, and Kanako KOBAYASHI

Abstract [Purpose] After new criteria for discharge from a tuberculosis ward were introduced, we studied changes in the length of hospitalization before and after adoption of these criteria.

[Methods] We evaluated monthly data on hospitalization in our tuberculosis ward between April 2003 and September 2008.

[Results] Although the number of complicated patients increased, hospitalization decreased after the change in discharge criteria.

[Conclusion] After adoption of the new discharge criteria, the length of hospitalization in our tuberculosis ward decreased.

Key words: Discharge criteria, Tuberculosis, Hospitalization

National Hospital Organization Matsue Medical Center

Correspondence to: Fumie Mishima, National Hospital Organization Matsue Medical Center, 5−8−31, Agenogi, Matsue-shi, Shimane 690−8556 Japan.
(E-mail: yano@matsue.hosp.go.jp)

A CASE OF CARDIAC TAMPONADE CAUSED BY TUBERCULOUS PERICARDITIS

Yoshihisa KOHNO, Kohei HARA, Koichi IZUMIKAWA, and Kinichi IZUMIKAWA

Abstract An 86-year-old male was admitted to Izumikawa Hospital complaining of fever and chest pain. Electrocardiography revealed low-voltage, atrial fibrillation and QRS complexes. The chest PA-view showed an increased cardiothoracic ratio (65.9%) and an infiltrative shadow in the left lower lung field. Computed tomography revealed copious pericardial and bilateral pleural effusion. Pericardiocentesis was performed immediately after admission, and 80 m*l* of hemorrhagic fluid was aspirated. The adenosine deaminase activity of the pericardial fluid was 77.2 IU/*l*, and testing for tuberculous bacilli by polymerase chain reaction was positive. As these parameters strongly suggested tuberculous pericarditis, pericardial drainage was continued for another two weeks, and a delayed combination therapy with isoniazid, rifampicin, streptomycin, and a high dose of prednisolone was initiated. Two weeks later, the symptoms were relieved and the pericardial effusion had also decreased.

Key words: Cardiac tamponade, Tuberculous pericarditis, Prednisolone, Pericardial drainage, Polymerase chain reaction (PCR)

Internal Medicine, Izumikawa Hospital

Correspondence to: Kinichi Izumikawa, Internal Medicine, Izumikawa Hospital, 2405, Fukae-cho, Minamishimabara-shi, Nagasaki 859−1504 Japan.
(E-mail: kinichi@izumikawa.or.jp)

Field Activities

A TRIAL TO MOBILIZE NGO HEALTH VOLUNTEERS TO IMPROVE TUBERCULOSIS PATIENT CARE IN SANA'A CITY, YEMEN

[1]Hamood Yahya MAHYIUOB AL-HONAHI, [2]Akihiro OHKADO, [3]Tsuneo MASUI, [4]Isam Addean ALI-HUSSEIN, and [5]Amin Noman SAEED AL-ABSI

Abstract [Objectives] The study aims to show the feasibility of involvement of Non-Governmental Organization (NGO) health volunteers with regular monitoring mechanism on tuberculosis (TB) control in Sana'a City, Yemen. [Methods] Interventions to mobilize NGO health volunteers with regular monitoring field visits in two selected districts with approximately 400,000 population in Sana'a City were conducted. 52 NGO health volunteers who belonged to a domestic NGO were trained on TB case finding and case holding activities by the national TB control programme staff during the fourth quarter of 2004. [Results] 136 new smear-positive TB cases were enrolled from January 2005 to September 2006. The cure rates indicated significant improvement from 73.4% to 84.6% after start of the intervention ($p=0.023$). The cure rate of patients whose treatment partners were health volunteers was significantly higher than patients whose treatment partners were health centre staff (93.3% vs. 79.8%, Exact $p=0.045$). [Conclusion] The present study showed the favourable results of the implementation of the intervention in two selected districts in Sana'a City with regards to the treatment outcomes. The National Tuberculosis Control Programme has decided to expand the NGO's health volunteers' involvement as treatment partners to at least urban settings in Yemen.

Key words: Tuberculosis, Directly Observed Treatment Short-course (DOTS), Non-governmental organization (NGO), Patient care, Urban health services, Yemen

SURGICAL TREATMENT FOR PULMONARY NONTUBERCULOUS MYCOBACTERIOSIS

Chairpersons: [1]Yutsuki NAKAJIMA and [2]Koji KIKUCHI

Abstract Recently cases of pulmonary nontuberculous mycobacteriosis (pNTM) have been increasing under the development of screening modalities in Japan. Even if pNTM is non-infective and slowly progressing, it must be treated by combined chemotherapy with effective multi-drugs for more than one year in principle. But several cases are refractory against those drug therapies and will fall to life-threatening states. In these back ground, the efficacies of surgical treatment for cases with limited pNTM foci have been reported from a few hospitals in the world, and now the surgery is being one of effective modalities for pNTM treatment. On the other hand, simple NTM nodules that should be differentiated from pulmonary malignancies were often detected by radiological screening. In those cases we don't know how to do post-resectional chemotherapies now. In 2007, American Thoracic Society revised "An Official Statement: Diagnosis, Treatment, and Prevention of Nontuberculous Mycobacterial Diseases". In Japan, The Japanese Society for Tuberculosis also revised "Japanese Guideline of Diagnosis for pNTM" following ATS, newly published "The Guideline of Surgical Treatment for pNTM" and "The Guideline for Medical Treatment for pNTM" in 2008. Now many clinical problems for pNTM in Japan are going to be standardized gradually.

In Japanese Guideline of Surgical Treatment (Surgery), main recommendations are as follows:

In basic considerations

- The object of surgery is mainly a control of disease progressing and not always radical, in other words, must not always remove all lesions of pNTM.
- The remove of major excretory lesions of NTM will be effective to suppression or recovery from pNTM progressing.
- Target pulmonary lesions must be resected.
- Some effective chemotherapy is necessary pre- and post-operatively.
- It is now controversial about the necessity of postresectional chemotherapy for solitary pNTM nodule. It must be studied furthermore.
- Postoperative results must be followed from not only medical but also surgical aspects.

Indication for surgical resection

- Major excretory lesions can be detected. And indications are those situations as chemotherapy not effective, or relapsed, or acutely deteriorating with massive mycobacterial expectorations, or with destructive change of airway as such as cavitary or bronchiectatic.
- Refractory clinical problems with massive airway bleedings, or chronic bronchial infections or co-infection of aspergillosis or other uncontrolable pathogen are also indicated.
- Patients must be operable by the examinations of cardiopulmonary functions.
- On the other hand, scattering small or milliary foci are not necessary resected in distant lobes or segments from the target areas.

Surgical procedure

- Best procedure is a resection of intrapulmonary lesions. It is better to cut a lung tissue along lobar or segmental borders according to bronchial anatomy, for example, segementectomy or lobectomy is recommended and partial pulmonary resection is not recommended.
- Cavernotomy is some effective to reduce amount of mycobacterial expectorations from the cavity.

To bring up this guideline, surgical members of Committee could not find out major evidences of the surgical treatment for pNTM worldwide and in Japan. The evidences to this recommendation are minor, empirical with small Japanese cases. So, it must be examined for its appropriateness in near future. In this mini-symposium, 8 Japanese hospitals accumulating many cases of surgical treatment for pNTM reported their results of surgery. Details of them were shown in their own reports in this paper. The chairs think those reports may actually reflect present states of surgical treatment for pNTM in Japan. Those

results are summarized in the Table.

1. Results of surgery for patients with nontuberculous mycobacterial lung disease: Akihide MATSUMURA, Norimasa ITOH, Kenichi OHMORI, *Katsuhiro SUZUKI, *Kazunari TSUYUGUCHI (Department of Surgery, and *Clinical Research Center, National Hospital Organization Kinki-chuo Chest Medical Center)

Retrospective review of 21 patients aged 31 to 69 years (13 males and 8 females) who underwent thoracic operation for the management of pulmonary nontuberculous mycobacterial disease was performed. Preoperative comorbidity was diabetes mellitus (n=3), alcoholic liver function disorder (n=2) and Behçet disease (n=1).

Four patients have had ipsilateral thoracic operation, 3 for pneumothorax and one for tuberculosis. Surgical procedures performed were pneumonectomy (n=2), lobectomy (n=11), sublobar resection (n=7) and cavernotomy followed by muscle plombage (n=1). No patient died in the postoperative period. The morbidity observed included prolonged air leakage (n=2) and chylothorax (n=1). Although two patients had positive acid-fast bacilli on sputum only once after the operation, both patients had uneventful course thereafter. Surgery for pulmonary nontuberculous mycobacterial disease is a safe and effective treatment of choice.

2. Efficacy of pulmonary resection for nontuberculolous mycobacteriosis: Eriho TAKEUCHI, Yutsuki NAKAJIMA (Department of General Thoracic Surgery, National Hospital Organization Tokyo National Hospital)

Analysis of retrospective clinical data on 170 patients who underwent pulmonary resection for nontuberculous mycobacteriosis (NTM) between 1974 and 2008 were performed. The mean follow-up was 72.2 months. 56% of patients had received surgery followed by CAM-based chemotherapy. Recurrent rate was 16.7%. In univariate analysis, age and residual disease after surgery were associated with disease recurrence. Destroyed lung and bronchus should be removed completely. Surgical intervention is appropriate in the majority of the patients with resectable NTM cases.

3. Experience of surgical treatment of nontuberculous mycobacterosis: Motofumi OUCHI, Nobutaka HAYAKAWA, Takeshi GOTOU (Department of Thoracic Surgery, Seirei-Yokohama Hospital)

Surgery was treated with NTM (nontuberculous mycobacterosis) of ten years in the past, and the Kaplan-Meier method was used and examined for 85 patient examples of doing the pursuit investigation. No rejection bacterium was 81.7% after the operation for ten years. The cause of the re-rejection bacterium was appearance of other new lesion. According to the re-treatment, the patient of about 90% is now in the state of the no rejection bacterium.

4. Pneumonectomy for nontuberculous mycobacterial diseases is a high-risk procedure: Yuji SHIRAISHI (Section of Chest Surgery, Fukujuji Hospital, JATA)

This is a retrospective review of 33 patients (22 MDR-TB, 11 NTM) who underwent pneumonectomy for pulmonary mycobacterial diseases between January 2000 and December 2007. Intra-operative variables were similar between MDR-TB and NTM patients. However, bronchopleural fistula occurred more frequently in NTM patients (5/11) than in MDR-TB patients (1/22). NTM patients are at significantly increased risk of BPF after pneumonectomy.

5. Surgical treatment for nontuberculous mycobacteriosis of the lung: Mitsuo NAKAYAMA, Yoshiaki INOUE, Naoko IZAWA, Ken TAKEUCHI, Yoshiaki GIKA, Keisuke EGUCHI, Koji KIKUCHI (Division of General Thoracic Surgery, Saitama Medical Center, Saitama Medical University)

We analysed the 10 surgically treated NTM cases in the light of the new guidelines for surgical treatment outlined in 2008. Early pulmonary resection in accordance with the guidelines is beneficial in patients whose disease is still localized and who can tolerate resection surgery. We also showed that, among 29 cases of so-called "Tuberculoma", seven cases were infected with NTM.

6. Pulmonary resection for nontuberculous mycobacterial lung disease treated with combined chemotherapy: Masazumi WATANABE, *Naoki HASEGAWA, *Akitoshi ISHIZAKA, Hiroaki NOMORI (Departments of Surgery, and *Internal Medicine, School of Medicine, Keio University)

Patients with localized pulmonary lesions persisting after state-of-the art antimicrobial chemotherapy administered for 6 to 37 months (mean=17), and expected to recover a stable postoperative pulmonary function underwent surgical resection procedures by lobectomy (n=23), segmentectomy (n=8) or partial lung resection (n=10). Ten patients underwent VATS resections. Postoperative chemotherapy was continued for 6 to 35 months. Thirty-four patients were alive survived at follow-ups ranging from 6 to 313 months (median=82 months).

The long-term outcomes of patients operated for MAC resistant to prolonged antimicrobial chemotherapy were excellent. We recommend performing surgery before the disease has become advanced and non-resectable.

7. Surgical treatment of pulmonary nontuberculous mycobacterial disease: Takeshi TOKUSHIMA, Shuichi YANO, Toshikazu IKEDA, Kanako KOBAYASHI, Toru KADOWAKI, Shigenori ISHIKAWA, Kiryo WAKABAYASHI, Masahiro KIMURA, Hiroyasu TAKEYAMA (National Hospital Organization Matsue Medical Center)

We have operated on 42 cases of pulmonary nontuberculous mycobacterial disease (pNTM) over the past 11 years, and obtained satisfactory results. 39 patients (93%) attained sputum negative status postoperatively and only 3 patients (7%) had

relapse. Therefore, the physician should judge the limit of the chemotherapy for pNTM earlier and select the surgical resection positively.

There are a lot of cases where the complete resection is possible by the VATS partial excision or the VATS segmentectomy in the patient who has localized small lesion. And, it seems that postoperative chemotherapy is especially unnecessary in such cases.

It is thought that it is necessary to make the appropriate guideline based on the nationwide investigation of surgical patient prognosis in the future.

8. Surgical management of nontuberculous mycobacterial lung disease: Hajime MAEDA (Department of General Thoracic Surgery, National Hospital Organization Toneyama National Hospital)

A retrospective review was conducted of 31 patients who underwent surgery for nontuberculous mycobacterial (NTM) lung disease from 1992 to 2008 at our hospital. Group A consisted of 17 patients who had received chemotherapy under the diagnosis of NTM, but their sputum did not convert to negative and focal lung damage (bronochiectasis, cavitation, consolidation and destroyed lung) deteriorated. Group B consisted of 14 patients who were incidentally detected a lung nodule, and surgery was indicated for definite diagnosis because the nodule was enlarging or mimicking lung cancer.

In group A, operative mortality and morbidity were 0% and 5.9% (1/17). One patient developed bronchopleural fistula after right pneumonectomy. Three patients (17.6%) failed to convert. In group B, operative mortality and morbidity were both 0%, and relapse did not occur in any patients.

Key words: Nontuberculous mycobacteriosis, Surgical treatment, Results of surgery, The Guideline of Surgical Treatment for pulmonary Non-tuberculous Mycobacteriosis

[1]Department of Chest Surgery, National Hospital Organization (NHO) Tokyo National Hospital, [2]Department of Chest Surgery, Saitama Medical Center, Saitama Medical University

Correspondence to: Yutsuki Nakajima, Department of Chest Surgery, NHO Tokyo National Hospital, 3−1−1, Takeoka, Kiyose-shi, Tokyo 204−8585 Japan.
(E-mail: nakajima-in@tokyo-hosp.jp)

Information

TUBERCULOSIS ANNUAL REPORT 2008
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Tuberculosis Surveillance Center, RIT, JATA

Abstract The condition of tuberculosis (TB) at the time of being diagnosed as TB influences the patient's prognosis. This paper focuses on the condition of TB at the time of being diagnosed based on bacteriological status and X-ray findings.

The proportion of bacillary cases among newly notified pulmonary TB patients increased greatly from 25.7% in 1979 to 81.9% in 2008. During this period, the proportion of far-advanced cavitary cases among pulmonary TB patients was around 2% and remained stable. This may mean that diagnosis became to be performed bacteriologically rather than radiologically.

The proportion of bacillary cases among newly notified pulmonary TB patients in 2008 was studied by sex and 5-year age group. The proportion of bacillary cases increased with age in both male and female TB patients. The proportion of cavitary cases increased in patients aged up to their 50's and then decreased with age. This tendency was more remarkable in male TB patients than in female. Although the proportion of cavitary cases among elderly TB patients was lower than among youths, the proportion having extensive lesions was greater than that of youths.

The proportion of sputum smear positive cases with cavity among pulmonary TB patients aged 30−59 years was 32.4% in male TB patients and 20.5% in female TB patients. According to occupation, this proportion was highest in temporary workers (51.7%) for male TB cases, service workers (28.7%) for female TB cases, and lowest among "teachers/nursery nurses" in both sexes: 15.4% of male TB cases and 8.3% of female TB cases, respectively.

Key words: Tuberculosis, Bacillary, Sputum smear positive, X-ray, Cavity, Sex, Age, Occupation

Research Institute of Tuberculosis, JATA

Correspondence to: Tuberculosis Surveillance Center, Research Institute of Tuberculosis, JATA, 3−1−24, Matsuyama, Kiyose-shi, Tokyo 204−8533 Japan.
(E-mail: tbsur@jata.or.jp)