International Journal of Gerontology 6 (2012) 224–228

Contents lists available at SciVerse ScienceDirect

International Journal of Gerontology

journal homepage: www.ijge-online.com

Original Article

Tuberculous Pleural Effusion in the Elderly☆

Yi-Chun Lai [1†], Shih-Chieh Chang [1†*], Mei-Kang Yuan [2], Jiun-I Lai [1], Po-Chou Lin [1], Li-Chiao Kuo [1], Cheng-Yu Chang [3], Yu-Chang Liu [1], Gau-Jun Tang [1]

[1] *Department of Internal Medicine, National Yang-Ming University Hospital,* [2] *Department of Radiology, National Yang-Ming University Hospital,* [3] *Department of Chest Medicine, Far Eastern Memorial Hospital, Taiwan*

ARTICLE INFO

Article history:
Received 17 March 2011
Received in revised form
27 March 2011
Accepted 13 April 2011
Available online 21 March 2012

Keywords:
clinical presentation,
elderly,
pleural effusion,
tuberculosis

SUMMARY

Background: Tuberculous pleural effusion is the second most common form of extrapulmonary tuberculosis. The relationship between the geriatric population and tuberculous pleural effusion has rarely been studied.

Methods: This is a retrospective study. From January 2005 through February 2009, we retrospectively enrolled 51 patients older than 18 years of age that were diagnosed with tuberculous pleurisy. We analyzed the clinical presentations and laboratory data of pleural effusion in elderly and adult groups.

Results: Of these patients, 32 were more than 65 years of age (elderly group) and 19 were less than 65 years of age (adult group). Chest pain occurred more frequently in the adult group than the elderly group (52.6 % vs. 15.6 %; $p < 0.01$). Ziehl-Neelsen stain and Lowenstein-Jensen culturing of the pleural fluid demonstrated similar diagnostic sensitivities between the adult and elderly groups. The pleural fluid consists almost exclusively of exudates, with lymphocytes being the most predominant finding. Regardless, lower lactate dehydrogenase (LDH) and protein contents in the pleural effusion of the elderly group were noted. The duration between thoracentesis and administration of antituberculous therapy was significantly longer in elderly group (12.4 ± 15.4 vs. 4.4 ± 5.5 days; $p = 0.03$).

Conclusion: Tuberculous pleurisy in elderly patients has less specific symptoms and laboratory findings. It may require a longer time to confirm diagnosis and start treatment.

Copyright © 2012, Taiwan Society of Geriatric Emergency & Critical Care Medicine. Published by Elsevier Taiwan LLC. All rights reserved.

1. Introduction

Pulmonary tuberculosis (TB) is an important clinical entity and one of the world's leading infectious diseases. In 2008, there were an estimated 9.4 million cases of TB (equivalent to 139 cases per 100,000 persons)[1]. Tuberculous pleural effusion is the second most common form of extrapulmonary TB (accounting for 15–20% of all cases of TB) and only occurs less frequently than TB lymphadenitis[2].

Quick and accurate diagnosis of tuberculous pleurisy remains a challenge for most clinicians. Large amount of pleural effusion may mask pulmonary TB lesions on a plain film of the chest. Ziehl-Neelsen staining and Lowenstein-Jensen culturing of the pleural effusion in order to confirm *Mycobacterium tuberculosis* (MTB) only have a sensitivity of 10–20%[2]. In addition, approximately 5% of patients with TB pleurisy have concurrent pulmonary TB[3], and sputum examinations are often negative. Needle pleural biopsy and thoracoscopy are more sensitive diagnostics for verifying tuberculous pleurisy, with sensitivities of 60–80% and 95%, respectively[4,5]. In countries with limited health resources, a higher regional incidence of TB is common and expensive diagnostic tools are frequently unavailable.

The relationship between the geriatric population and tuberculous pleural effusion has rarely been investigated. Atypical presentation and common geriatric diseases may obscure tuberculous pleurisy and delay diagnosis. Therefore, we have retrospectively reviewed our experiences from January 2005 through February 2009 with the aim of analyzing the differences in clinical presentation and laboratory and radiographic findings between adult and elderly patients with tuberculous pleurisy.

☆ All contributing authors declare no conflicts of interest.

* Correspondence to: Dr Shih-Chieh Chang, Department of Internal Medicine, National Yang-Ming University Hospital, Number 152, Xin-Min Road, Yilan City 260, Taiwan.
E-mail address: dtsurga9@yahoo.com.tw (S.-C. Chang).

† Yi-Chun Lai and Shih-Chieh Chang contributed this work equally.

1873-9598/$ – see front matter Copyright © 2012, Taiwan Society of Geriatric Emergency & Critical Care Medicine. Published by Elsevier Taiwan LLC. All rights reserved.
doi:10.1016/j.ijge.2012.01.029

2. Methods

2.1. Study sample

National Yang-Ming University Hospital, Yilan City, Taiwan, is a 400-bed regional teaching hospital that offers clinical services. From January 2005 through February 2009, patients who were older than 18 years of age and registered with the Centers for Disease Control (Taiwan, R.O.C.) with a tentative diagnosis of tuberculosis were screened for inclusion in this study. The diagnosis of tuberculous pleural effusion was confirmed on the basis of previously published and generally accepted clinical criteria. Briefly, tuberculous pleural effusion was diagnosed if the patient showed a chest radiograph that was interpreted by a radiologist as pleural effusion and at least one of the following criteria: (1) positive culture for *M tuberculosis* from sputum, pleural fluid, or pleural biopsy; (2) acid-fast bacilli in sputum, pleural fluid, or biopsied tissue; (3) pleural tissue histopathology compatible with TB (e.g., granulomatous inflammation, caseous necrosis with Langhans giant cells, epithelioid cells, and the presence of lymphocytes or acid-fast bacilli); (4) a compatible clinical picture and one of the following: lymphocytic pleural fluid (> 50% lymphocytes), exudative fluid (protein >3 g/dL or lactate dehydrogenase [LDH] > 200 U/L); and (5) radiographic pleural effusion that was resolved using the appropriate antimycobacterial therapy[6]. Patients were excluded if they were younger than 18 years of age or had malignant pleural effusion or empyema.

The positive report on acid-fast staining by the Ziehl-Neelsen method indicates that the slide that contains >1–9 acid-fast bacilli (AFB) per 100 fields. If the slide contains 1–2 AFB per 300 fields, the report is unclear and an additional specimen should be requested. However, we still requested an additional specimen to double check if possible, even if we thought the initial specimen was positive.

The demographic data and clinical characteristics of the study population were obtained from reviews of the clinical charts, Centers for Disease Control (Taiwan, R.O.C.) registry information, physician records, patient correspondence, and telephone interviews. Patient records were reviewed for at least 6 months unless death occurred.

For this study, the diagnostic date of tuberculous pleurisy was classified as the date the AFS/AFB or pleural biopsy verified diagnosis. Then, the clinical laboratory data and symptoms recorded on initial presentation were used to confirm tuberculous pleurisy. In this study, the diagnostic duration means the period from the date of thoracentesis to the initiation of antituberculosis therapy.

All pleural tissue specimens were obtained by ultrasonography-guided core needle biopsy. Pleural fluid was sampled via an Abrams needle, and three to six biopsy specimens were obtained via an inward motion of the closed biopsy pouch. Pleural biopsies were stored in 0.95% saline solution for TB culturing and in 4% formalin for histology and AFB-staining. The Ziehl-Neelsen method was used for AFB-staining, and mycobacteria were cultured on solid media in addition to the standard BACTEC method[7]. Pleural fluid was analyzed for pH, biochemical markers, Gram stain, bacterial and TB confirmation, cytology, differential white blood cell (WBC) count using standard cytospin procedures, and hematoxylin-eosin and Papanicolaou staining.

Chest radiographs and computed tomography (CT) scans obtained at the time of the initial evaluation were independently reviewed by two radiologists who were blind to the clinical and epidemiological data. Chest radiographs and CT scans were obtained for 52 and 35 patients, respectively.

2.2. Statistical analysis

Statistical analyses were performed using SPSS (version 15.0; SPSS Inc., Chicago, IL, USA) for Windows. Patient characteristics were described using frequencies for categorical data and the mean ± standard deviation for numeric variables in each group. Categorical variables were compared using Fisher's exact test, and continuous variables were compared using the nonparametric Mann-Whitney U test. Two-tailed p value <0.05 was considered significant. The study was approved by the authors' institutional review board. Informed written consent was waived because the study was retrospective.

3. Results

3.1. Demographic data

Between January 2005 and February 2009, a total of 51 patients older than 18 years were diagnosed with tuberculous pleurisy. Of

Table 1
Demographic data of patients.

	Adult (%) (N=19)	Elderly (%) (N=32)	p value
Age (y)	41.7 ± 13.6	79.2 ± 7.6	<0.01
Male	11 (57.9)	23 (71.9)	0.31
Co-morbidities			
Malignancy	1 (5.3)	2 (6.3)	0.89
Diabetes	4 (21.1)	7 (21.9)	0.95
COPD	1 (5.3)	6 (18.8)	0.18
Heart failure	0 (0)	6 (18.8)	0.04
Chronic kidney disease	0 (0)	3 (9.4)	0.17
Liver cirrhosis	1 (5.3)	1 (3.1)	0.70
Smoker	8 (42.1)	9 (28.1)	0.31
Alcoholism	5 (26.3)	4 (12.5)	0.21
Old TB history	2 (10.5)	5 (15.6)	0.61
CVA (%)	0 (0)	5 (15.6)	0.07
Steroid use	0 (0)	1 (3.1)	0.44
BMI	21.7 ± 3.0 (N = 15)	20.0 ± 3.0 (N = 18)	0.12
Serum albumin (g/dl)	3.0 ± 0.4 (N = 5)	2.7 ± 0.4 (N = 15)	0.11
Serum total protein (g/dl)	7.7 ± 0.8 (N = 7)	7.4 ± 0.6 (N = 13)	0.51
Serum LDH (U/l)	223.8 ± 124.2 (N = 8)	208.1 ± 80.0 (N = 19)	0.70
Serum creatinine (mg/dl)	0.8 ± 0.2	1.3 ± 1.3	0.09
Serum CRP (mg/dl)	7.8 ± 5.1 (N = 13)	10.6 ± 8.7 (N = 23)	0.29

COPD = chronic obstructive pulmonary disease; TB = tuberculosis; CVA = cerebrovascular accident; BMI = body mass index; LDH = lactate dehydrogenase; CRP = C-reactive protein.

Download English Version:

https://daneshyari.com/en/article/3325268

Download Persian Version:

https://daneshyari.com/article/3325268

Daneshyari.com