



The Value of Ca 125 in Spinal Tuberculosis

Alamsyah Faritz Siregar^{1*}, Otman Siregar²

¹Resident of Orthopaedic and Traumatology, Faculty of Medicine, University of North Sumatera, Haji Adam Malik General Hospital, Medan, Indonesia

²Consultant, Dept. Of Orthopaedic & Traumatology, Faculty of Medicine, University of North Sumatera

Haji Adam Malik General Hospital, Medan, Indonesia

Abstract : Background : Tuberculosis known as one of most deadliest disease in the world, as much 35% of whole extrapulmonary TB cases afflict the bone, and most of it on the spine. Ca 125 is a useful malignant marker, where the value increase in both malignant and benign. **Objective:** The aim of this study was to compare the value of Ca 125 in spinal tuberculosis compare with a healthy person. **Material and Method :** A total twenty four patients (twelve on each group) of patients with spinal TB and health sample patients were checked for the value of ca 125 between December 2018 and February 2019, gender, age, and the laboratory result of ca 125 were recorded, and the two group result of ca 125 are compared. **Results :** There were significant differences value of ca125 between two group ($p > 0,05$), with mean value of ca 125 in spinal tb group (± 48.78), and health patients group (± 5.09). **Results :** There were significant differences value of ca125 between two group ($p > 0,05$), with mean value of ca 125 in spinal tb group (± 48.78), and health patients group (± 5.09). **Conclusion :** The value of ca 125 on spinal tb found higher compared to health patient, and it showed by $p < 0,001$ ($p < 0,05$).

Key Words : Tuberculosis, Spinal Tuberculosis, Ca 125.

Introduction

Tuberculosis (TB) is one of the long-known diseases and is still the leading cause of death in the world. The prevalence of TB in Indonesia and other developing countries is quite high. In 2006, new cases in Indonesia amounted to > 600,000 and most people suffer from productive age (15–55 years).

About 20% of pulmonary TB infections will spread out of the lungs (extrapulmonary TB). Eleven percent of extrapulmonary TB is osteoarthicular TB, and about half of patients suffer from spinal TB infection. Half have lesions in the spine with neurologic deficits 10 % - 45% of sufferers.

Ca 125 is a protein obtained in the blood in various conditions including ovarian cancer. Examination of Ca 125 levels is often used as an initial screening for ovarian cancer but this examination is not sensitive enough to diagnose the early stages of the disease. Although more than 85% of patients with advanced ovarian cancer have increased Ca 125 levels (> 35 U / ml), it turns out that only 50% have increased in the early stages of the disease. In addition, an increase in Ca 125 levels of more than 35 U / ml was found in 6% of the population without ovarian cancer.

Ca 125 examination is not specific for diagnosing ovarian cancer but it is potential to be used to assess, monitor, and evaluate the therapeutic response to ovarian cancer. Serial reduction in Ca 125 levels indicates a positive response to therapy and vice versa.

Serous type epithelial ovarian cancer expresses Ca 125 significantly higher than other types of epithelial ovarian cancer. A shorter 5-year life expectancy was found in patients with stage III and IV ovarian cancer without Ca 125 expression compared to those with Ca 125 expression.

Preliminary

Before discussing the results of the study, because this study had never been done before, it was carried out with a small scale preliminary study using 8 balanced subjects with 4 subjects (4 subjects with tuberculosis spondylitis, 4 healthy subjects) to get the mean and standard deviation from each group.

Method

The amount of total sample were than calculated to find the amount of each group, 12 sample for spinal tuberculosis and 12 sample for health patients as a control group.

The study conducted was an observational analytic study not paired with a crosssectional approach, which aimed to analyze the difference between the levels of Ca 125 values in tuberculosis spondylitis and the control group, in this case in healthy patients.

Results

This study calculate two group of 12 subjects for each group, with significant result between two group ($P < 0,05$), with mean value of ca 125 in spinal tuberculosis patient is $48,75 \pm 12,75$ and mean value of ca 125 in health patients is $5,09 \pm 0,64$

Tabel 1. Statistic analytic value of ca 125 in spinal tuberculosis and health patients

		Mean	p value
<i>Ca 125</i>	Spinal Tuberculosis	$48,75 \pm 12,75$	0,0001
	Health Patients	$5,09 \pm 0,64$	

Discussion

The main purpose of this study is to see the correlation between ca 125 in spinal tuberculosis. The result of this study showed that there is correlation between ca 125 and spinal tuberculosis, proven by significant value of ca 125 in spinal tuberculosis compared the value of ca 125 in healthy patients. There are some other studies showing that there is significant result of ca 125 in tuberculosis extrapulmonal.

Conclusion

The statistic analysis result that compared the value of ca125 in spinal tuberculosis and ca 125 in healthy patients showed significant result, value of ca 125 in spinal tuberculosis is increased.

Conflict of Interest

Non declared in this study.

References

1. American Thoracic Society. Diagnostic standard and classification of tuberculosis. *Am Rev Respir Dis* 1990; 142: 725-735.
2. Ameglio F, Giannarelli D, Cordiali Fei P, et al. Use of discriminant analysis to assess disease activity in pulmonary tuberculosis with a panel of specific and nonspecific serum markers. *Am J ClinPathol* 1994; 101: 719-725.
3. Saltini V, Colizzi V. Soluble immunological markers of disease activity in tuberculosis. *Eur Respir J* 1999; 14: 485-486.
4. Hosp M, Elliott AM, Raynes JG, et al. Neopterin, beta-2 microglobulin and acute phase proteins in HIV-1-seropositive and seronegative Zambian patients with tuberculosis. *Lung* 1997; 175: 265-275.
5. Aoki Y, Katoh O, Nakanishi Y, Kuroki S, Yamada H. Comparison study of IFN-g, ADA, and Ca 125 as the diagnostic parameters in tuberculosis pleuritis. *Respir Med* 1994; 88:139-143.
6. Taha RA, Kotsimbos TC, Song YL, Menzies D, Hamid O. IFN-g and IL-12 are increased in active compared with inactive tuberculosis. *Am J Crit Care Med* 1997; 155:1135-1139.
7. Verbon A, Juermans N, Van Deventer SJ, Speelman P, Van Deutekom H, Van Der PT. Serum concentrations of cytokines in patients with active tuberculosis. *ClinExp Immunol* 1999; 115:110-113.
8. Juermans NP, Verbon A, van Deventer SJ, Van Deutekom H, Speelman P, Van Der PT. Tumor necrosis factor and interleukin-1 inhibitors as markers of disease activity of tuberculosis. *Am J Respir Crit Care Med* 1998; 157:1328-1331.
9. Hunter VJ, Weinberg JB, Haney AF, et al. Ca 125 levels in peritoneal fluid and serum from patients with benign gynecologic conditions and ovarian cancer. *Gynecol Oncol* 1990; 30:161-165.
10. Diez M, Cerdan FJ, Ortega MD, Torres A, Picardo A, Balibrea JL. Evaluation of serum Ca 125 as a tumor marker in non-small cell lung cancer. *Cancer* 1991; 67:150-154.
11. Buamah P. Benign conditions associated with raised serum CA-125 concentration. *J Surg Oncol* 2000; 75:264-265.
12. Yoshimura T, Okamura H. Peritoneal tuberculosis with elevated serum CA 125 levels: a case report. *Gynecol Oncol* 1987; 28:342-344.
13. Candocia SA, Locker GY. Elevated serum Ca 125 secondary to tuberculous peritonitis. *Cancer* 1993; 72:2016-2018.
14. Simsek H, Savas MC, Kadayifci A, Tatar G. Elevated serum CA 125 concentration in patients with tuberculous peritonitis: a case control study. *Am J Gastroenterol* 1997; 92:1174-1176.
15. O'Riordan DK, Deery A, Dorman A, Epstein OE. Increased Ca 125 in a patient with tuberculous peritonitis: case report and review of published works. *Gut* 1995; 36:303-305.
16. de Paz FN, Fernandez BH, Simon RP, et al. Pelvic peritoneal tuberculosis simulating ovarian carcinoma: report of three cases with elevation of the Ca125. *AJG* 1996; 91:1660-1661.
17. Gurgan T, Zeyneloglu H, Urman B, Develioglu O, Yarly A. Pelvic peritoneal tuberculosis with elevated serum and peritoneal fluid CA 125 levels: a report of two cases. *GynecolObstet Invest* 1993; 35:60-61.
18. Agarwal, P. and Kehoe, S. Serum tumour marker in gynaecological cancers. *Maturitas* 67, 2010: 46-53.
19. Boivin, M., Lane, D., Piche, A., Rancourt, C. CA125 (MUC16) tumor antigen selectively modulates the sensitivity of ovarian cancer cells to genotoxic drug-induced apoptosis. *Gynecologic Oncology* 115, 2009: 407-413.
20. Rancourt, C., Matte, I., Lane, D., Piche, A. The role of MUC16 mucin (CA125) in the pathogenesis of ovarian cancer. *Ovarian Cancer- Basic Science Perspective*.
21. Scholler, N. and Urban, N. 2007. CA125 in ovarian cancer. *Biomark Med*, 2007: December; 1(4): 513-523.
22. Diez M, Cerdan FJ, Ortega MD, Torres A, Picardo A, Balibrea JL. Evaluation of serum Ca 125 as a tumor marker in nonsmall cell lung cancer. *Cancer* 1991; 67:150-154.
23. Hirose T, Ohta S, Sato I, et al. Tuberculous pleura-peritonitis showing increased levels of Ca 125. *Nihon KyobuShikkon Gakkai Zasshi* 1997; 35:196-200.

24. Matsuako Y, Nakashima T, Endo K, et al. Recognition of ovarian cancer antigen Ca125 by murine monoclonal antibody produced by immunization of lung cancer cells. *Cancer Res* 1987; 47:6335-6340.
25. Simsek H, Savas MC, Kadayifci A, Tatar G. Elevated serum CA 125 concentration in patients with tuberculous peritonitis: a case control study. *Am J Gastroenterol* 1997; 92:1174-1176.
26. Diez M, Cerdan FJ, Ortega MD, Torres A, Picardo A, Balibrea JL. Evaluation of serum Ca 125 as a tumor marker in non-small cell lung cancer. *Cancer* 1991; 67: 150-154.
27. O'Riordan DK, Deery A, Dorman A, Epstein OE. Increased Ca125 in a patient with tuberculous peritonitis: case report and review of published works. *Gut* 1995; 36: 303-305.
28. Paul Elkington, Takayuki Shiomi, Ronan Breen, et al. MMP-1 drives immunopathology in human tuberculosis and transgenic mice.
29. Moesbar N. Infeksi Tuberkulosis Pada Tulang Belakang. *Majalah Kedokteran Nusantara*. 2006; 39(3):279-289.
30. Garfin SR, Vaccaro AR. Spinal Infections. In: *Orthopaedic Knowledge. Spine update*. American Academy of Orthopaedic Surgeon, 1997. p.261 – 3.
31. Ramachandran R, Paramasivan CN. What is new in the diagnosis of tuberculosis. *Indian Journal of Tuberculosis* 2003; 6: 182 – 8.
32. WHO Communicable Diseases Cluster. Fixed dose combination tablets for treatment of tuberculosis. Report of an informal meeting held in Geneva; April 27, 1999.
33. Tuli SM. Tuberculosis of the spine. New Delhi : Amerind, 1975 .p. 564 – 7.
34. Apley. *Apley's system of orthopaedics and fractures*. 8th Ed. Oxford: BH Co 2001 .p.387 – 9.
35. Crenshaw AH. Spinal anatomy and surgical approach. In: *Campbell's operative orthopaedics*. 8th Ed. Missouri: Mosby Year Book 1992. p.3493 – 514; 3792 – 817.
36. Salter B. Tuberculous osteomyelitis. In: *The Musculoskeletal System*. 2nd Ed. New York: Williams & Wilkins, 1984. p.186 – 9.
37. Rini SH. Pemeriksaan antigen 38kDa dan 4 antigen sitoplasma lain dari M.tuberculosis dengan teknik imunokromatografi untuk evaluasi hasil terapi penderita tuberkulosis paru. Tesis untuk memenuhi salah satu syarat guna memperoleh gelar spesialisilmupatologiklinik. Fakultas Kedokteran Universitas Indonesia 2004.
