The Value of Ca 125 in Spinal Tuberculosis

Alamsyah Faritz Siregar¹*, 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 extrapulmonal 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 compared 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.

Alamsyah Faritz Siregar et al /International Journal of ChemTech Research, 2019,12(4): 48-51.
DOI= http://dx.doi.org/10.20902/IJCTR.2019.120408
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 crossectional 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 subject 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 ± 12,75 and mean value of ca 125 in health patients is 5,09 ± 0,64

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

| Ca 125          | Mean       | p value |
|-----------------|------------|---------|
| Spinal Tuberculosis | 48,75 ± 12,75 | 0,0001  |
| Health Patients | 5,09 ± 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. SaltiniC, 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-serpositive 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, Ju¨ermans 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. Ju¨ermans 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’Riordian 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, Yaraly 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. Maturitas67, 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. DiezM, CerdanFJ, OrtegaMD,TorresA, PicardoA, Balibrea JL. Evaluation of serum Ca 125 as a tumor marker in non-small cell lung cancer. Cancer 1991; 67: 150-154.
27. O’Riordian DK, DeeryA, 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 Shiom, Ronan Breen, et al. MMP-1 drives immunopathology in human tuberculosis and transgenic mice.
29. Moesbar N. InfeksiTuberkulosisPadaTulangBelakang. MajalahKedokteranNusantara. 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 Geneve; 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.tuberkulosis denganteknik imunokromatografantuk evaluasihasilterapipenderitatuherkulosisparu. Tesisuntukmenemuhisalsah satu syaratgunamemperollgelarspsialsimupatologiklinik. Fakultas Kedokteran Universitas Indonesia 2004.

*****