Original Article

Medicine

Diagnostic Yield of Lymphocyte Rich Exudative Pleural Effusion

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ABSTRACT

Objective: To determine the diagnostic yield of lymphocytic rich Pleural effusion in patients with pleural exudates.
Study Design: Observational study.
Place and Duration: This study was carried out in the Medicine department of Saidu hospital from Jan 2011 to December 2012.
Subject and Methods: Fifty (50) patients with pleural exudates were included. Effusions were classified as transudates or exudates on the basis of Light's criteria. Exudates were further classified as lymphocyte rich or non lymphocyte rich. Lymphocyte rich effusion is one in which (60 %) or more than (60 %) of the cells are lymphocytes.
Results: (80 %) of the pleural effusions were lymphocyte rich and (95 %) of these effusions were Tuberculous. On the other hand (20 %) of the Exudates were non lymphocyte rich and only (5 %) of these exudates were tuberculous. The p value was 0.000((χ^2 =28.1, df=1) .
Conclusion: We conclude that tuberculosis is the commonest cause of lymphocyte rich pleural exudates.
Key Words: Pleural effusion, Tuberculosis, Exudative Effusion.

INTRODUCTION

Pleural effusion is an accumulation of fluid in the pleural space.It is also called oedema of the pleural space.[1] Under normal physiological conditions pleural space contains 1 to 20 ml of fluid but under pathological conditions up to 1500ml of fluid can accumulate in the pleural space.[2] If the amount of fluid is less than 500 ml, it is called small effusion and if more than 1500 ml, it is called large effusion.[3]

There are different types of effusions like empyema, chylous effusion, haemorrhagic effusion, transudates and exudates. Exudative effusions are a common clinical problem with prevalence of 4.1% in hospitalized patients.[4] And 4.1% work load of the chest physicians is due to exudative effusions.[5] The aetiology of pleural exudates is diverse and may be the only clinical presentation of a disease. In order to reach logical conclusion two important investigations are pleural fluid analysis and pleural biopsy. Although 20% patients with pleural effusion may remain undiagnosed.[5, 6]

Pleural fluid Aspiration is less invasive than pleural biopsy. It is the first investigation to consider. In our country Tuberculous infection rate is 54% in 20-29 years age group.[7] Therefore in every patient the primary concern is tuberculosis, because early diagnosis and treatment will prevent morbidity and mortality including Psychological impact on patients.[8]

MATERIALS AND METHODS

This prospective observational study was carried out in the medicine department of Saidu hospital over a period of 24 months from Jan 2011 to Dec 2012. A total of 50 patients, both male and female were included in the study. Their age was ranging from 15 years to 70 years. Pleural effusions were initially classified as Exudates or Transudates on the basis of Light's criteria.[9] Finally fifty patients with exudative effusions were selected. Informed consent was taken for including their bio data in the research proforma. Exudative effusions were further classified in to two groups. Group I, Lymphocyte rich and Group II, non lymphocyte rich. Lymphocyte rich effusion is one in which 60% or more than 60% of the cells are lymphocytes. The results were analysed statistically using the chi-square test of independence. (χ^2 =28.1, df=1)

RESULTS

Out of fifty selected patients, forty patients(80%) were having lymphocyte rich effusions and ten patients(20%) were having non lymphocyte rich effusion . In group I, 38(95%) were tuberculous and 2(5%) were non tuberculous. In group II, only 2(20%) were tuberculous and 8(80%) were non tuberculous.

Table No.1: Association between lymphocyte rich exudative effusion and tuberculosis:

Group	Exudative effusion	No (%)	Tuber-culous N (%)	Non tuber-culous N (%)
I	Lymphocyte rich	40(80%)	38(95%)	2(20%)
II	Non lymphocyte rich	10(20%)	2(5%)	8(80%)
	Total	50	40	10

When the results were analysed statically the p value was calculated to be 0.000 and the expected value and observed value have been tabulated in Table 2. Which shows minor difference in the expected and observed values; showing the statistical significance.

Table No.2: The observed values and expected values

Group	Exudative effusion	No (%)	Tuberculous Observed (Expected)	Non tuberculous Observed (Expected)
I	Lymphocyte rich	40(80%)	38(32)	2(8)
II	Non lymphocyte rich	10(20%)	2(8)	8(2)
	Total	50	40	10

DISCUSSION

The purpose of this study was to determine the diagnostic yield of lymphocyte rich pleural exudates. This study has effectively shown that 80% of the lymphocyte rich effusions are tuberculous in nature. On the other hand only 20% of the non lymphocyte rich effusions are tuberculous in nature. This trend has been shown in the previous studies as well where 60 to 90 % cases of tuberculosis and malignancy are lymphocyte rich.[10, 11, 12]

Malignancy is the commonest cause of lymphocyte rich effusion in the developed world while tuberculosis is the commonest cause in the developing world.[11,12] However because of the rise in HIV infection Tuberculosis is also rising.

The limitations of this study were sample size and some investigations like Adenosine Deaminase and pleural fluid PCR could not be performed because of resources limitations.[13] Microbiological investigation alone is not enough in diagnosing tuberculous pleural exudates as the rate of isolation of myco bacterium from pleural fluid is low .[14,15]. Malignancy is the second most common cause of lymphocytic rich exudative effusion in our country [16,17]. only pleural fluid analysis fail to differentiate the two lymphocyte rich exudative effusion which occurs both in malignancy and tuberculosis so other supporative evidence needs to be considered [18]. Isolated LDH as a representative of the lights' criteria can be cost effective in the determination of the exudative effusion in our society [19], but currently it is not recommended and the standard lights' criteria is considered for the classification of pleural effusion.

CONCLUSION

Tuberculous pleural effusions are common and 80% of these effusions are lymphocyte rich effusions.

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