Project No : 3714/2007

Comparison of biological markers for diagnosis of tubercular pleural effusion from non tubercular effusion

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OBJECTIVES

Exploring the levels of ADA and interleukins in pleural effusion of tuberculous, malignant and miscellaneous origin for differential diagnosis of tubercular and non-tubercular effusion.

METHOD

Design and Methods ADA was estimated by kinetic method employing Xanthine oxidase while interleukins were measured using commercially available enzyme-linked immunosorbent assay kits in pleural fluids of tubercular and non-tubercular origin.

RESULTS

Mean ± SD of pleural fluids INF-□, sIL-2R, TNF-□and ADA were significantly higher in TB group (n = 48) as compared to non-TB group (N = 33)(INF-□; 1958.7 ± 896.5 pg/ mL versus 356.9 ± 733.6 pg/mL, sIL- 2R; 6101 ± 1753.8 pg/mL versus 3166 ± 2611.1 pg/mL, TFN-□; 195.5 ± 292.1 pg/mL versus 59.7 ± 128.9 pg/mL, ADA; 123.6 ± 81.8 IU/L versus 48 ± 48.5 IU/L, P < 0.01).

RECOMMENDATIONS

This study suggests that there is no clinical utility of Pleural fluid TNF- ∝either for diagnosis or for differentiation of tubercular pleural effusion from non tubercular effusion. Pleural fluid INF- □and sIL-2R whose sensitivity and specificity was better than pleural fluid ADA preferably be included in the diagnostic profile to differentiate tubercular pleural effusion from non tubercular effusion. However neither INF- □nor sIL-2R was found to exhibit 100% sensitivity and specificity for diagnosis or for differentiation of tubercular pleural effusion from non tubercular.

Out of INF- □and sIL-2R, if any one marker is to be selected to reduce the cost, then INF- □should be preferred over sIL-2R. Pleural fluid INF- □appears better than pleural fluid sIL-2R. Estimation of both INF- □and sIL-2R are ELISA based and involves almost same cost, instrument, technique and time.

Considering the amount of expenditure involved in estimation of pleural fluid INF- □and or sIL-2R, technical expertise, instrumentation (ELISA Reader) then comparing with the outcome of estimation with reference to differentiation of tubercular pleural effusion from non tubercular and the outcome of pleural fluid ADA, this study finally recommends that : i) Pleural fluids ADA may be done and result to be interpreted at a cut off level of 71 IU/L ii) Pleural fluid INF- □could be incorporated in the armamentarium of the diagnostic workup of pleural fluids for timely and accurate diagnosis of tubercular pleural effusion from non tubercular effusion.