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RP 21

Comparison of Capillary Electrophoresis and Bromocresol Green Methods for Quantification of Serum Albumin on Patients Referred to Serum Protein Electrophoresis from Medical Wards at Teaching Hospital, Jaffna

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Introduction

Serum albumin determination is used for prognostic assessment of diseases and low serum albumin levels correlate with an increased risk of morbidity and mortality. Among the different methods, this study compares capillary electrophoresis and Bromocresol green (BCG) methods. The CE method relies on total protein measurement, hence bias from total protein estimation can affect the results. Some hospitals use CE for their diagnostic purposes. Therefore, it must be well correlated with quantitative methods for the interpretation of results. This study compares albumin concentration by CE with BCG method.

Methods

A total of 67 blood samples were collected from patients who underwent serum protein electrophoresis testing from medical wards at Teaching Hospital Jaffna. Serum albumin was measured by manual BCG method and CAPILLARYS SEBIA. In CE, albumin was estimated as a percentage of total protein in capillary electropherogram. Actual concentration of albumin was calculated by estimating total protein by manual Biuret method. Student t-test was used for mean comparison.

Results

Mean (±SD), median and interquartile range of serum albumin by BCG were 34.44(±5), 34.64 and 6.92 g/L respectively. Mean (±SD), median and interquartile range by CE were 34.07(±6.41), 34.31 and 9.21 g/L respectively. Mean difference between BCG and CE was 0.37, which was not statistically significant (*p*= 0.335). Correlation between BCG and CE was statistically significant with strong positive correlation (*r*=0.884, *p*<0.001, *n*=67).

Conclusion

Serum albumin measured by CE has not significantly differed from BCG method. Mean difference between BCG and CE was statistically insignificant (*p*>0.05). There was statistically significant strong positive correlation between BCG and CE *(r=0.884)*. Therefore, the errors occurred during CE and Total protein estimation can be ignored. This denotes both BCG and CE can be used for serum albumin estimation. Further studies on larger population with varied geographical distribution are recommended.

Key words

BCG, CE, Albumin