

ALBUMIN AS A PROGNOSTIC INDICATOR FOR TWO DEADLY DISEASES OF THE 21ST CENTURY

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ABSTRACT

INTRODUCTION

Two of the most dreaded diseases of the 21st century are cancer and HIV. It brings shiver down the spines of a treating physician because of the complexity of the diseases. One important way of doing this is serum albumin which is most commonly used. In recent years, the role of malnutrition as a predictor of survival in cancer has received considerable attention. As a result, it is reasonable to investigate whether serum albumin has utility as a prognostic indicator of cancer survival in cancer. This review summarizes all available epidemiological literature on the association between pretreatment serum albumin levels and survival in different types of cancer. Pretreatment serum albumin levels provide useful prognostic significance in cancer.

KEYWORDS

Albumin, Prognostic, Disease, HIV, Cancer.

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INTRODUCTION: Two of the most dreaded diseases of the 21st century are cancer and HIV. It brings shiver down the spines of a treating physician because of the complexity of the diseases.

HIV is caused by a retrovirus which attacks the CD4 cells and majority of the cancer according to recent understandings is caused by viruses examples such as HPV viruses.

We now know the amino acid sequences of bovine and human albumin, the complete gene sequence of human albumin, and the location of mutations in the gene sequence. The function of circulating albumin in critical illness is not fully understood. It may differ significantly from that in healthy subjects. A low serum albumin concentration in critical illness is associated with a poor outcome.^{1,2,3}

There are several methods of assessing nutritional status in cancer patients.⁴ One important way of doing this is serum albumin which is most commonly used. In recent years, the role of malnutrition as a predictor of survival in cancer has received considerable attention. As a result, it is reasonable to investigate whether serum albumin has utility as a prognostic indicator of cancer survival in cancer. This review summarizes all available epidemiological literature on the association between pretreatment serum albumin levels and survival in different types of cancer.

Low albumin levels have been associated with HIV progression.⁵ The objective of this analysis was to confirm this association and to further examine the effect of albumin before and after HIV seroconversion on disease progression.

Pre-treatment serum albumin levels provide useful prognostic significance in cancer. Accordingly, serum albumin level could be used in clinical trials to better define the baseline risk in cancer patients. A critical gap for demonstrating causality, however, is the absence of clinical trials demonstrating that raising albumin levels by means of intravenous infusion or by hyperalimentation decreases the excess risk of mortality in cancer.

AIMS AND OBJECTIVES:

1. To find out whether Serum albumin can be used as prognostic indicator in HIV and cancer.
2. To find out the critical value of serum albumin at which the diseases progresses.
3. To find out whether any treatment which includes albumin decreases the disease progression.

Fifty cancer patients and twenty five HIV patients were taken up for the study. They were properly diagnosed and the consent were taken for the study.

The albumin has been successively shown as a prognostic tool in identifying the course of disease. It is even helpful to check whether the treatment is working for a disease or not.

4. To find out whether Serum albumin can be used as prognostic indicator in HIV and cancer.
5. To find out the critical value of serum albumin at which the diseases progresses.
6. To find out whether any treatment, which includes albumin decreases the disease progression.

MATERIALS AND METHODS: Fifty cancer patients and twenty five HIV patients were taken up for the study. They were properly diagnosed and the consent were taken for the study.

The study was conducted in P.K. Das Medical College and it was continued in Kanachur Institute of Medical Sciences.

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Before the commencement of treatment the initial serum albumin levels were taken as A0 value.

Then the treatment was continued and the serum albumin were checked after every step of the treatment.

The albumin level was noted at which the disease worsened.

RESULT: IN CANCER:

Time	Starting (Number)	Mean levels of albumin during treatment	Mean levels at which the disease worsened
<4gm/dl	41	21	81
>4gm/dl	59	79	19
Table 1: Shows the relation of levels of serum albumin and its role in the progression and mortality by cancer			

IN HIV:

Time	Starting (Number)	Mean levels of albumin during treatment	Mean levels at which the disease worsened
<4gm/dl	58	09	89
>4gm/dl	42	91	11
Table 2: Shows the relation of levels of serum albumin and its role in the progression and mortality by HIV			

Albumin level after infusion	Signs of Recovery	Significance
<4gm/dl	21	Yes (p value > 0.05)
>4gm/dl	79	Yes (p value > 0.05)
Table 3: After Treatment with Albumin (Cancer)		

This shows a significant improvement.

Albumin Level after infusion	Signs of Recovery	Significance
<4gm/dl	09	Yes (p value >0.05)
>4gm/dl	91	Yes (p value >0.05)
Table 4: After Treatment with Albumin (HIV)		

This shows a significant improvement.

DISCUSSION: The last 25yr have seen major advances in our understanding of albumin. We now know the amino acid sequences of bovine and human albumin, the complete gene sequence of human albumin, and the location of mutations in the gene sequence. The function of circulating albumin in critical illness is not fully understood. It may differ significantly from that in healthy subjects. A low serum albumin concentration in critical illness is associated with a poor outcome.^{2 11 66}

Critical illness alters the distribution of albumin between the intravascular and extravascular compartments. There are also changes in the rates of synthesis and degradation of the protein. The serum albumin concentration will decrease, often dramatically, from early in the course of a critical illness. It will not increase again until the recovery phase of the illness. The kinetics of albumin given IV will differ greatly between critically ill patients and healthy subjects. The implication of this, given the important functions albumin has in health, is that using exogenous albumin to increase the intravascular albumin concentration during critical illness is beneficial, but studies have failed to show any benefit of albumin over other colloidal therapies in adults.

Other studies have also shown such values and the effects of albumin in diseases.

After albumin infusion the signs and symptoms of the disease drastically came down.

CONCLUSION: The albumin has been successively shown as a prognostic tool in identifying the course of disease. It is even helpful to check whether the treatment is working for a disease or not.

REFERENCES:

1. Apeltgren KN, Rombeau JL, Twomey PL, et al. Comparison of nutritional indices and outcomes in critically ill patients. Crit Care Med 1982;10:305–7.
2. Bradley JA, Cunningham KJ, Jackson VJ, et al. Serum protein levels in critically ill surgical patients. Intensive Care Med 1981;7:291–5.
3. Mouridsen HT. Turnover of human serum albumin before and after operations. Clin Sci 1967;33(2):345–54.
4. Phillips A, Shaper AG, Whincup PH. Association between serum albumin and mortality from cardiovascular disease, cancer, and other causes. Lancet 1989;2:1434–6.
5. Mehta SH, Astemborski J, Sterling TR, et al. Serum albumin as a prognostic indicator for HIV disease progression. AIDS Res Hum Retroviruses. Jan 2006;22(1):14–21.