

The Strong for Surgery program recommends testing albumin levels of patients prior to surgery to help determine risk for postsurgical complications. Surgical Care and Outcomes Assessment Program (SCOAP) 2005–2011 data indicates that there is a 200% to 300% increase in rates of re-operation and/or death in patients with an albumin of <3.0 g/dL.

It makes good practice sense to test albumin prior to performing any major surgery to help stratify patient risk. A low albumin will provide clues to the clinician as to the general health of the patient and guide them to look for potentially modifiable factors such as fluid retention and medication changes.

Reasons for low albumin include:

- Liver Disease
- Nephrotic syndrome
- Inflammation
- Edema
- Sepsis
- Cancer
- Burns
- Malnutrition

Low Albumin as an Indicator of Malnutrition—Mixed Results

Historically, albumin has been used as a marker of nutritional status. Until recently, the assumption has been that nutritional intake would positively affect changes in albumin levels. However, recent review of the available literature on adults in which calorie and protein intake was compared to albumin level showed inconsistent results.

American Society for Parenteral and Enteral Nutrition's (ASPEN's) Clinical Guidelines were released in January 2011, and their experts advise that albumin and prealbumin not be used in isolation to assess nutrition status because they are fundamentally markers of inflammatory metabolism (JPEN).

Serum levels of some proteins change during the acute phase response; those that decrease are called negative acute phase proteins (e.g., albumin and pre albumin) and those that increased are called positive acute phase proteins (e.g., C-reactive protein [CRP]).

A decline in protein concentrations may be due to the body's need to increase production of immune mediators during times of stress and decrease the production of other proteins that are not essential for immune function. Since albumin levels are decreased in the presence of inflammation regardless of nutritional status, some practitioners now measure CRP along with albumin and prealbumin to assess for the presence of inflammation.

How Do We Diagnose Malnutrition?

Strong for Surgery recommends a nutrition screening using a presurgical checklist to most accurately detect malnutrition. Patients identified as malnourished should be referred to a registered dietitian for nutritional assessment and intervention. Assuring adequate calorie and protein intake is essential to help the body repair and fight inflammation but may not cause a positive change in albumin levels. Therefore, relying on albumin levels alone may falsely diagnose patients as malnourished. There are simple, more direct indicators of malnutrition included in the Strong for Surgery presurgical checklist. Inadequate nutrient intake or weight loss are clear indicators of compromised nutritional status regardless of serum protein levels.

References:

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