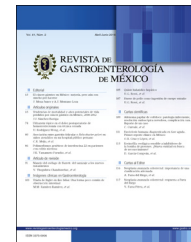




# REVISTA DE GASTROENTEROLOGÍA DE MÉXICO

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## ORIGINAL ARTICLE

# Hypoalbuminemia in the outcome of patients with non-variceal upper gastrointestinal bleeding<sup>☆</sup>

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### KEYWORDS

Hypoalbuminemia;  
Gastrointestinal  
bleeding;  
Mortality;  
Scoring systems;  
Rockall score

### Abstract

**Introduction and aim:** The role of serum albumin level in patients with non-variceal upper gastrointestinal bleeding (NVUGB) has not been extensively studied. Our aim was to evaluate the role of serum albumin on admission in terms of in-hospital mortality in patients with NVUGB.

**Materials and methods:** Patients admitted with NVUGB during a 4-year period were prospectively included. Demographic, clinical, and laboratory data were collected. ROC curve analysis was used to determine the cutoff value for serum albumin on admission that made a distinction between deceased patients and survivors with respect to serum albumin on admission, as well as its overall performance compared with the Rockall score.

**Results:** 185 patients with NVUGB were evaluated. Men predominated (56.7%) and a mean age of  $59.1 \pm 19.9$  years was found. Mean serum albumin on admission was  $2.9 \pm 0.9$  g/dl with hypoalbuminemia ( $< 3.5$  g/dl) detected on admission in 71.4% of cases. The ROC curve found that the best value for predicting hospital mortality was an albumin level of 3.1 g/dl (AUROC 0.738). Mortality in patients with albumin  $\geq 3.2$  g/dl was 1.2% compared with 11.2% in patients with albumin  $< 3.2$  g/dl ( $P=.009$ ; OR 9.7, 95%CI 1.2-76.5). There was no difference in overall performance between the albumin level (AUROC 0.738) and the Rockall score (AUROC 0.715) for identifying mortality.

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**PALABRAS CLAVE**

Hipoalbuminemia;  
Sangrado  
gastrointestinal;  
Mortalidad;  
Sistemas de  
puntuación;  
Escala Rockall

**Conclusions:** Patients with hypoalbuminemia presenting with NVUGB have a greater in-hospital mortality rate. The serum albumin level and the Rockall score perform equally in regard to identifying the mortality rate.

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## Hipoalbuminemia en el desenlace clínico de pacientes con sangrado de tubo digestivo alto no variceal

### Resumen

**Introducción y objetivo:** El papel de los niveles séricos de albúmina en pacientes con sangrado de tubo digestivo alto no variceal (SDA-NV) no ha sido estudiado ampliamente. Nuestro objetivo fue evaluar el papel de los niveles de albúmina en la mortalidad de pacientes con SDA-NV.

**Material y métodos:** Se incluyó a pacientes con SDA-NV de forma prospectiva durante un periodo de 4 años. Se recolectaron datos demográficos, clínicos y de laboratorio. Se usó análisis ROC para determinar el mejor punto de corte para la albúmina sérica al momento de admisión que discrimine entre aquellos que sobrevivieron y aquellos que fallecieron, así como para comparar el desempeño global con la escala de Rockall.

**Resultados:** Ciento ochenta y cinco pacientes con SDA-NV fueron analizados. El sexo masculino predominó (56.7%) y la edad media fue de  $59.1 \pm 19.9$  años. La media de albúmina al momento de admisión fue de  $2.9 \pm 0.9$  g/dl, detectando hipoalbuminemia ( $< 3.5$  g/dl) en el 71.4% de los casos. La curva ROC encontró un nivel de albúmina de 3.1 g/dl (AUROC 0.738) como el mejor punto de corte que predice mortalidad hospitalaria. La mortalidad en pacientes con albúmina  $\geq 3.2$  g/dl fue del 1.2% comparado con el 11.2% en el grupo con un valor  $< 3.2$  g/dl ( $p = 0.009$ ; RM 9.7, IC del 95%, 1.2-76.5). El desempeño global para identificar mortalidad fue similar entre albúmina (AUORC 0.738) y la escala de Rockall (AUROC 0.715).

**Conclusiones:** Los pacientes con SDA-NV con hipoalbuminemia presentan una mayor mortalidad hospitalaria. La albúmina sérica y la escala de Rockall mostraron un rendimiento similar para identificar mortalidad.

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## Introduction and aim

Gastrointestinal bleeding is a common medical emergency with an estimated incidence of 48 to 160 events per 100,000 adults, accounting for approximately 300,000 hospital admissions per year in the United States.<sup>1-3</sup> Despite major advances in the management of non-variceal upper gastrointestinal bleeding (NVUGB) in the last decades, its related mortality rate continues to be considerable at 5 to 10%.<sup>4,5</sup> Peptic ulcer bleeding is still the most common cause and is responsible for approximately 31 to 67% of all cases, followed by erosive disease, esophagitis, malignancy, and Mallory-Weiss tears.<sup>3</sup>

Different studies have shown that serum albumin levels have prognostic value for clinical complications in different scenarios including elective surgery, surgical oncology, hospital stay in patients admitted to internal medicine or pediatrics, hospital mortality in stroke patients and

patients with major trauma, among other conditions.<sup>6-8</sup> Despite the prognostic value of serum albumin in different settings, its clinical value in patients with NVUGB has not been widely evaluated in prospective studies.<sup>9</sup> We previously evaluated a cohort of 1,067 patients and found that the serum albumin level upon admission was an independent predictor of in-hospital mortality.<sup>10</sup> We also analyzed a group of patients with chronic liver disease (CLD) and NVUGB, and again, hypoalbuminemia was an independent predictor of mortality.<sup>4</sup> However, the previously mentioned studies included patients with comorbidities such as CLD, end-stage chronic renal disease (ESRD), and neoplasia, which have been clearly associated with hypoalbuminemia.<sup>11-13</sup> These entities are confounding factors associated with final outcomes in these studies.

In this prospective study, we sought to examine the role of serum albumin upon admission in relation to clinical course

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