# Evolving Paradigms in Albumin Therapy for Decompensated Cirrhosis: Highlights From the EASL Congress 2025

**Author:** *Nikolaj Torp[1]
1. Odense University Hospital, Denmark
*Correspondence to nikolaj.torp@rsyd.dk

**Citation:** EMJ Hepatol. 2025;13[1]:30-31.
https://doi.org/10.33590/emjhepatol/GQPU9959

THE MANAGEMENT of decompensated cirrhosis remains a formidable challenge in hepatology, owing to its multifaceted complications and limited therapeutic options. At the European Association for the Study of the Liver (EASL) Congress 2025, several pivotal studies highlighted new insights into the clinical utility of human albumin therapy, expanding our understanding of its role in improving patient outcomes. This feature reviews the latest data presented on long-term albumin administration, mechanistic studies on endothelial dysfunction, and randomised controlled evidence for its role in correcting hyponatraemia.

## LONG-TERM ALBUMIN ADMINISTRATION: THE PRECIOSA TRIAL

The PRECIOSA trial, a large-scale, multicentre, Phase III randomised controlled study, presented top-line results evaluating the efficacy of long-term albumin therapy in patients with cirrhosis, prior or current ascites, and acute decompensation.[1] This trial enrolled 410 patients from 14 countries, randomising them to receive either standard medical treatment alone, or standard medical treatment plus Albutein® (Grifols, Barcelona, Spain) 20% (1.5 g/kg every 10 days for up to 12 months). While the primary endpoint of 1-year transplant-free survival was not met with statistical significance (hazard rate: 0.80; 95% CI: 0.58–1.10), the study nonetheless revealed promising trends. Notably, the incidence of disease-related complications was significantly lower in the treatment arm, with marked reductions in cirrhosis-related complications, such as spontaneous bacterial peritonitis (odds ratio 0.28; 95% CI: 0.09–0.86) and hepatorenal syndrome (odds ratio 0.24; 95% CI: 0.09–0.64). Importantly, the safety profile of albumin was favourable, with no new safety signals.

These findings suggest that, although the survival benefit was not statistically conclusive, long-term albumin therapy may exert clinically meaningful effects by stabilising the disease course and reducing major complications. However, more targeted approaches are needed to identify patients who are likely to respond to therapy.

> **Long-term albumin therapy may exert clinically meaningful effects by stabilising the disease course and reducing major complications**

## PATHOPHYSIOLOGICAL MECHANISM: ENDOTHELIAL DYSFUNCTION AS A THERAPEUTIC TARGET

Addressing the mechanistic underpinnings of albumin's effects, a translational study from Leiden University Medical Center, the Netherlands, explored the impact of human albumin on endothelial cell (EC) dysfunction, which is a key contributor to acute decompensation and acute-on-chronic liver

  

failure.[2] Using a high-content imaging model, cultured endothelial cells were exposed to plasma from patients with decompensated cirrhosis and hypoalbuminaemia, with and without albumin supplementation. The administration of albumin shifted EC morphology towards a healthier phenotype, particularly reversing detrimental mitochondrial changes. These effects were not replicated when ECs were stimulated by inflammatory mediators such as TNF-α or lipopolysaccharide, suggesting a unique corrective effect of albumin on circulating factors in cirrhotic plasma. This study bolsters the view of albumin as a biologically active therapeutic agent, rather than merely a plasma expander.

## ALBUCAT: TARGETING HYPONATRAEMIA IN CIRRHOSIS

Hyponatraemia is a common and prognostically unfavourable complication in decompensated cirrhosis. The ALBUCAT trial addressed this issue through a randomised, multicentre design evaluating short-term intravenous albumin administration versus standard of care in patients with dilutional hyponatraemia (serum sodium ≤133 mEq/L).[3] Among 52 patients, those receiving daily albumin exhibited significantly higher rates of hyponatraemia resolution (48% versus 15%; relative risk 3.39; p=0.0145) and greater increases in serum sodium (median 133 mEq/L versus 129 mEq/L). The data confirms that intravenous albumin can be a valuable adjunct in managing dilutional hyponatraemia where therapeutic options remain limited.

## CLINICAL IMPLICATIONS

The collective data presented at EASL 2025 contribute to a paradigm shift in how albumin is conceptualised in cirrhosis care. The PRECIOSA trial offers a possible affirmation of the disease-modifying potential of long-term albumin, despite a neutral primary endpoint. Meanwhile, mechanistic insights into endothelial protection and randomised evidence in hyponatraemia management underscore albumin's multifactorial benefits.

These findings support a more personalised approach to albumin therapy, particularly in patients with advanced disease phenotypes, such as those prone to circulatory dysfunction, systemic inflammation, and impaired sodium homeostasis. Yet, critical questions remain regarding optimal dosing regimens, patient selection, and health-economic considerations.

## CONCLUSION

> **The collective data presented at EASL 2025 contribute to a paradigm shift in how albumin is conceptualised in cirrhosis care**

At EASL 2025, albumin therapy was redefined, not merely as a volume expander or rescue agent, but as a pleiotropic modulator of disease progression in cirrhosis. As evidence continues to accumulate, future guidelines may increasingly recommend individualised albumin protocols for targeted subpopulations. These developments mark an important evolution in our therapeutic arsenal against decompensated liver disease.


### References

1. O'Leary JG et al. Efficacy and safety of long-term human albumin therapy in cirrhotic patients with acute decompensation and ascites: topline results of the PRECIOSA trial. Abstract LBO-003. EASL Congress, 7-10 May, 2025.
2. Fischer S et al. Albumin as a therapeutic target for endothelial dysfunction in patients with decompensated cirrhosis. Abstract THU-177. EASL Congress, 7-10 May, 2025.
3. Juanola A et al. Short-term intravenous albumin administration increases serum sodium levels in hospitalized patients with decompensated cirrhosis and dilutional hyponatremia. A randomized, multicenter, controlled trial (ALBUCAT). Abstract LBP-010-YI. EASL Congress, 7-10 May, 2025.