Case Series

From crisis to stability: A case series on terlipressin in managing upper gastrointestinal bleeding in chronic liver disease

Karra Geetha[1], Atchula Sripriya[2], Kandi Sandhya Devi[2], Madhavaneni Shishla[2], T Rama Rao[3]

From [1]Associate Professor, Department of Pharmaceutics, [2]Student, Department of Pharm D, [3]Principal, Department of Pharmaceutical Chemistry, CMR College of Pharmacy, Hyderabad, Telangana, India

ABSTRACT

Upper gastrointestinal bleeding (UGIB) is a severe complication of chronic liver disease (CLD) requiring prompt intervention to prevent further morbidity. Terlipressin, a vasopressin analog, is widely employed to stabilize hemodynamics and control variceal hemorrhage. This case series examines the effectiveness of terlipressin in managing UGIB in three patients with CLD. In two cases, the timely administration of terlipressin led to significant clinical improvements, including stabilization of hemodynamic parameters, reduced bleeding episodes, and shorter hospital stays. However, a delay in terlipressin administration in the third case resulted in prolonged hospitalization and delayed recovery, necessitating additional supportive measures. These findings highlight the critical role of early terlipressin therapy in improving clinical outcomes in patients with CLD presenting with UGIB.

Key words: Alcohol liver disease, Chronic liver disease, Hepatorenal syndrome, Hospitalization, Terlipressin, Variceal bleeding

Liver disease, particularly cirrhosis and conditions like alcoholic liver disease (ALD), poses a significant global health challenge, contributing to high rates of illness and death worldwide. The World Health Organization reports that liver cirrhosis claims over one million lives annually, with a large portion of these fatalities linked to alcohol consumption. Chronic liver disease (CLD) is a major global health problem, with cirrhosis constituting the 11th largest cause of mortality and accounting for 2.2% of all fatalities in 2016. In 2017, CLD claimed the lives of around 1.32 million people worldwide, with males accounting for approximately two-thirds and women for one-third [1,2]. Other key risk factors include viral hepatitis (notably hepatitis B and C), non-alcoholic fatty liver disease, and autoimmune liver conditions [3,4]. What makes liver disease particularly insidious is its often-asymptomatic progression until reaching advanced, life-threatening stages, making it a prevalent issue in both developed and developing countries. The management of chronic obstructive liver disease has seen notable advancements, particularly in the realm of pharmacological therapies. Among these, terlipressin has emerged as a highly effective treatment for complications such as hepatorenal syndrome (HRS) and variceal bleeding in patients with cirrhosis [3]. As a vasopressin analog, terlipressin induces vasoconstriction within the splanchnic circulation, thereby improving renal perfusion. This action is critical for enhancing kidney function in individuals suffering from HRS and mitigating the risk of acute kidney injury [4,5]. Clinical studies have consistently shown that terlipressin can reverse HRS, lower serum creatinine levels, and stabilize blood pressure, all of which are vital for managing the complex systemic complications associated with advanced chronic obstruction liver disease [6-8]. Through these benefits, terlipressin has the potential to markedly enhance the quality of life for patients grappling with these severe conditions [9].

This case series highlights the effectiveness of terlipressin in treating upper gastrointestinal bleeding (UGIB) in individuals with CLD. It intends to provide some insight into the efficacy of this medication in stabilizing patients in severe conditions.

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CASE SERIES

Case 1

A 74-year-old man presented with melena and hematemesis. The patient has generalized weakness, pallor, and hypotension with chronic obstructive liver disease, decompensated, variceal bleeding, and hepatic stenosis Grade II. The patient was a chronic alcoholic and smoker. On physical examination, the patient had jaundice, pale conjunctiva, and bleeding gums. Abdominal examination revealed a distended abdomen with mild tenderness

Correspondence to: Karra Geetha, Department of Pharmaceutics, CMR College of Pharmacy, Hyderabad, Telangana, India. E-mail: geetabiokarra@gmail.com

in the right upper quadrant. Other findings included ascites and spider angiomas. An ultrasound revealed hepatic stenosis Grade 2 and an upper gastrointestinal endoscopy showed esophageal varices with active bleeding.

The patient was started on terlipressin at a dose of 2 mg intravenous (IV) every 4 h. Within 48 h, there was a significant improvement in hemodynamic stability, and the patient's bleeding symptoms, including melena and bleeding gums, resolved over the next 3 days. Terlipressin was continued for a total of 5 days, the dose was tapered to 1 mg for every 6 h on the 3rd day, after which, the patient showed further significant improvement. A repeat endoscopy on the 5th day revealed cessation of variceal bleeding, and the patient remained stable. He was subsequently transitioned to a non-selective beta-adrenergic antagonist with additional alpha-1 adrenergic blocking properties for long-term management.

Case 2

A 51-year-old man with a history of ALD presented with abdominal swelling, yellowing of the eyes for the past 15 days, shortness of breath, reduced urine output, and multiple episodes of vomiting blood (hematemesis) resulting in hypovolemic shock. After immediate resuscitation, he underwent an endoscopy, which identified UGIB as the source of his condition. Terlipressin was administered intravenously at a dose of 1 mg every 4 h. Within 24 h, the patient began to show signs of clinical improvement, and after 72 h of terlipressin treatment, his bleeding was effectively controlled. Following 3 days of therapy, he remained stable, and measures were taken to prevent future bleeding episodes. The treatment resulted in significant improvement in the patient's symptoms, marking a positive turnaround in his condition.

Case 3

A 48-year-old male with a history of CLD was admitted with complaints of three episodes of hematemesis and reduced appetite, abdominal distention, and mild ascites. On general examination, the patient exhibited cachexia, jaundice, and pallor. Abdominal examination revealed mild ascites, with tenderness on palpation. Additional findings included palmar erythema, spider angiomas, and hepatomegaly following a week of heavy alcohol consumption. He was diagnosed with ALD, complicated by chronic obstructive liver disease, portal hypertension, and pan-erosive gastritis, accompanied by an UGIB. Upper gastrointestinal endoscopy revealed prolapsing gastric mucosa at the lower esophagus and erythema with erosions in the fundus, body, and antral regions of the stomach. Initially, the patient was treated with IV Vitamin K (1 ampule every 6 h) and tranexamic acid (1 g IV for 4 days). Despite this regimen, his clinical condition showed little improvement, and mild hematemesis persisted.

Subsequently, on 5th day terlipressin was introduced at a dose of 1 mg every 6 h IV. After 72 h of terlipressin therapy, the patient exhibited positive clinical improvements, with a marked reduction in portal hypertension, and the bleeding was successfully controlled.

DISCUSSION

In this case series, we examined the efficacy of terlipressin in treating UGIB and portal hypertension, particularly in patients with variceal bleeding. Among the three cases, two patients received terlipressin, while the third did not initially receive this therapy. The delay in terlipressin administration in the third case resulted in a longer recovery period and extended hospitalization. The outcomes observed in this series highlight the critical role of terlipressin in managing variceal hemorrhage and its significant impact on patient recovery.

CASE ANALYSIS

Cases with Terlipressin Administration

Case 1 and Case 2

Both patients showed remarkable clinical improvement after starting terlipressin therapy. Within 24–72 h of initiating treatment, there was clear resolution of bleeding episodes and stabilization of hemodynamic parameters. These results align with findings from Zhou *et al*. [5], which underscore the vasoconstrictive action of terlipressin and its ability to reduce portal pressure, thus preventing further variceal rupture. The rapid therapeutic response observed in both cases supports the critical role of terlipressin in the acute management of UGIB due to portal hypertension, as emphasized in studies like that of Ioannou *et al*. [6] which highlights its efficacy in improving patient outcomes in similar clinical contexts.

Case with Delay in Terlipressin Administration

Case 3

In contrast, the patient who did not receive terlipressin initially faced a more complicated clinical course. Despite receiving fibrinolytic therapy, bleeding persisted due to the lack of vasoconstriction, which delayed recovery. Once terlipressin was introduced after 5 days, significant improvement was noted within 72 h, although the delay in starting therapy resulted in prolonged hospitalization. This case reinforces the potential consequences of withholding terlipressin when it is indicated. Research by Ioannou *et al*. and Zhou *et al*. [5,6], supports the notion that early intervention with terlipressin is crucial to prevent further deterioration in variceal bleeding cases, as a delay can exacerbate the patient's condition, leading to longer stays and greater risk of complications.

IMPLICATION OF PRACTICE

The outcomes observed in this case series strongly support the use of terlipressin as a first-line therapy for managing UGIB

due to portal hypertension. In the cases where terlipressin was administered promptly, the drug demonstrated its effectiveness in quickly achieving hemostasis and stabilizing patients, which is consistent with current clinical protocols. Terlipressin's ability to reduce portal pressure and control bleeding, as detailed in studies by Zhou *et al*. and Ioannou *et al*., further supports its use in these critical situations.

Conversely, the third case underscores the risks associated with delaying terlipressin administration. The delayed introduction of the drug led to persistent bleeding and an extended hospital stay, thus increasing the risk of complications. This reinforces the importance of timely intervention in acute variceal bleeding, where swift administration of terlipressin can prevent the worsening of the condition, reduce morbidity, and improve patient quality of life [3,9]. The findings suggest that terlipressin should be prioritized in clinical settings to optimize outcomes for patients with variceal bleeding and portal hypertension.

CONCLUSION

This case series highlights the efficacy of terlipressin in treating UGIB, particularly variceal hemorrhage. The significant improvements in clinical outcomes for the two patients who received early terlipressin, compared to the delayed recovery of the patient who did not, emphasize the importance of timely intervention. Administering terlipressin early can effectively control bleeding, stabilize patients, and reduce recovery time. Further research with larger sample sizes is needed to validate these findings and establish standardized guidelines for the optimal use of terlipressin in managing UGIB due to portal hypertension.

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