



# Pharmacy Grand Rounds

200 First Street SW  
Rochester, Minnesota 55905  
<https://ce.mayo.edu/pharmacy-grandrounds2023>

## A Hard-Pressed Debate: The Role of Terlipressin in Hepatorenal Syndrome

**Session Date:** 02/14/2023

**Session Time:** 11:00 – 11:45 AM (CST)

### Target Audience

This continuing education (CE) session was planned to meet the needs of professional staff who deal with the selection and monitoring of medication(s) as part of their patient care duties, including pharmacists, RNs, APRNs, PAs, MDs.

### Activity Overview

Hepatorenal syndrome (HRS) remains a common cause of acute kidney injury in patients with cirrhosis and is associated with high morbidity and mortality. HRS may be medically managed and reversed through restoration of adequate renal blood flow with albumin and vasoconstrictors. Although terlipressin has been considered a first-line vasoconstrictor agent globally for HRS reversal for over a decade, the lack of FDA approval and availability has limited its use in the United States leaving off-label combination of midodrine and octreotide or norepinephrine as current standards of care. Recently, the FDA approved terlipressin for improvement of kidney function in adults with HRS. Given the increased risk of death due to respiratory failure demonstrated in the phase three clinical trial that led to its approval, debate exists regarding terlipressin's true benefit to safety profile. This presentation will review the recent advances in our understanding of HRS and compare the efficacy, safety, and utility of terlipressin in HRS to current standards of care in a pro-con debate.

### Learning Objectives

At the conclusion of this knowledge-based CE session, participants should be able to:

1. Describe the pathophysiology of hepatorenal syndrome (HRS).
2. Discuss literature comparing the efficacy and safety of terlipressin to alternative pharmacologic therapies for HRS.
3. Outline an optimal patient care plan for the management of HRS

### Faculty Information

Nikitha Yagnala, PharmD  
PGY2 Critical Care Pharmacy Resident  
Mayo Clinic Hospital - Rochester, MN

Nikitha received a Doctor of Pharmacy degree from the University of Pittsburgh in Pittsburgh, PA. She is one of the current PGY2 Critical Care Pharmacy Residents at Mayo Clinic Hospital – Rochester, where she also completed her PGY1 residency. Her practice interests include analgesia and sedation, anticoagulation, and emergency medicine.



Andy J. Jatis, PharmD, BCPS  
PGY2 Critical Care Pharmacy Resident  
Mayo Clinic Hospital - Rochester, MN

Andy received a Doctor of Pharmacy degree from the University of Iowa College of Pharmacy and completed a PGY1 Pharmacy Residency at Mayo Clinic Hospital – Rochester. He is a current PGY2 Critical Care pharmacy resident at Mayo Clinic Hospital – Rochester. His practice interests include anticoagulation, mechanical circulatory support, and management of shock.



## Approved Provider Statement



JOINT ACCREDITATION™  
INTERPROFESSIONAL CONTINUING EDUCATION

In support of improving patient care, this activity is planned and implemented by Mayo Clinic College of Medicine and Science. Mayo Clinic College of Medicine and Science is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC) to provide continuing education for the healthcare team.

### Credit Statements

#### AMA

Mayo Clinic College of Medicine and Science designates this live activity for a maximum of 0.75 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

#### ACPE



**ACPE Universal Activity Number (UAN):** JA0000238-0000-23-007-L01-P

Mayo Clinic College of Medicine and Science designates this educational activity for a maximum of 0.75 ACPE Knowledge-based contact hours. Participants should claim only the credit commensurate with the extent of their participation in the activity.

#### ANCC

Mayo Clinic College of Medicine and Science designates this activity for a maximum of 0.75 ANCC contact hours. Nurses should claim only the credit commensurate with the extent of their participation in the activity.

#### AAPA



Mayo Clinic College of Medicine and Science has been authorized by the American Academy of PAs (AAPA) to award AAPA Category 1 CME credit for activities planned in accordance with AAPA CME Criteria. This activity is designated for 0.75 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation.

## Educational Format and CE Requirements

This CE session is available as a live presentation, including live webcast.

Participants must complete the following to record attendance and obtain CE credit:

1. Attend the entire session.
2. Text the session code to 507-200-3010 within 48 hours of the live presentation to record attendance.
  - a. This number is only used for receiving text messages related to tracking attendance
  - b. Employees are encouraged to create a contact in their mobile phone, as the same number is used to record attendance for every session
3. Complete the online evaluation for the respective session within 2 weeks of live presentation.

Pharmacist CE credit is electronically transferred to the National Association of Boards of Pharmacy CPE Monitor.

To track CE, please go to [NABP CPE Monitor](#).

Non-pharmacist attendees can print out a record of attendance at [ce.mayo.edu](http://ce.mayo.edu) after completing the evaluation and claiming credit.

Live attendance: Rochester, Saint Mary's Campus, ALF\_MN\_459

Live virtual attendance via [Zoom link](#)

## Disclosure Summary

As a provider accredited by Joint Accreditation for Interprofessional Continuing Education, Mayo Clinic College of Medicine and Science must ensure balance, independence, objectivity and scientific rigor in its educational activities. All who are in a position to control the content are required to disclose all financial relationships with any ineligible company. Faculty will also identify any off-label and/or investigational use of pharmaceuticals or instruments discussed in their content for FDA compliance.

Listed below are individuals with control of the content of this program:

The faculty report the following relationships:

- Nikitha Yagnala, PharmD
  - Declares no financial relationship(s) pertinent to this session
  - Declares off-label use of medications will be discussed during this presentation, including:
    - Midodrine
    - Octreotide
    - Norepinephrine
- Andy J. Jatis, PharmD, BCPS
  - Declares no financial relationship(s) pertinent to this session
  - Declares off-label use of medications will be discussed during this presentation, including:
    - Midodrine
    - Octreotide
    - Norepinephrine

Course Director and Planning Committee Members declare no relevant financial relationship(s) pertinent to this session. Members include:

- Jennifer Elmer, DNP, APRN, CCNS
- Andrew Herber, PA-C
- Sarah Jane Kotval, BSW
- Scott Nei, PharmD, BCPS, BCCCP, FCCM, FMSHP
- Wayne Nicholson, MD, PharmD, BCPS
- Garrett Schramm, PharmD, FASHP, FCCP

All relevant financial relationships have been mitigated.

For additional disclosure information regarding Mayo Clinic School of Continuous Professional Development accreditation review committee members visit [ce.mayo.edu](https://ce.mayo.edu), About Us, Disclosures - or - <https://ce.mayo.edu/content/disclosures>

## System and Technical Requirements

For participants viewing the webcast, sessions are delivered via Mayo Clinic intranet web browser and Adobe® PDF. For participants viewing outside the Mayo Clinic firewall, a VPN connection is required for remote access. Recommended web browser includes Google Chrome. This session is planned and coordinated by **the Department of Pharmacy, Mayo Clinic.**