



Mallinckrodt to Present Data on TERLIVAZ® (terlipressin) for Injection in Adult Patients with Hepatorenal Syndrome (HRS) at the National Kidney Foundation (NKF) 2023 Spring Clinical Meeting (SCM)

April 10, 2023

– Two scientific abstracts spanning clinical and health economic outcomes research will be presented at the 2023 NKF SCM, showcasing the breadth of Mallinckrodt's commitment to HRS patients with rapid reduction in kidney function^[1] –

DUBLIN, April 10, 2023 /PRNewswire/ -- [Mallinckrodt plc](#) (NYSE American: MNK), a global specialty pharmaceutical company, today announced that two scientific abstracts on the clinical and health economic outcomes of treatment with TERLIVAZ® (terlipressin) for adult patients with hepatorenal syndrome (HRS) will be presented at the [National Kidney Foundation \(NKF\) 2023 Spring Clinical Meeting \(SCM\)](#) in Austin, TX taking place April 11 – 15, 2023.



TERLIVAZ is the first and only FDA-approved product indicated to improve kidney function in adults with hepatorenal syndrome (HRS) with rapid reduction in kidney function,^[1] an acute and life-threatening condition requiring hospitalization.^[2]

Please see Limitation of Use and Important Safety Information, including Boxed Warning, below.

The findings from one of the abstracts, presented by Xingyue Huang, PhD, Senior Director, HEOR, Critical Care at Mallinckrodt, provide insight into the treatment cost per response in patients with hepatorenal syndrome treated with TERLIVAZ plus albumin versus other unapproved treatments from a U.S. hospital perspective.^[3] Furthermore, findings from a pooled analysis of three Phase III terlipressin trials, presented by Muhammad A Mujtaba, MD, University of Texas Medical Branch, Galveston TX, offer perspective into the clinical impact of serum creatinine reduction from treatment initiation with TERLIVAZ through end of treatment on outcomes for adults with hepatorenal syndrome.^[4]

Additional information on these studies and the full list of Mallinckrodt's presentations can be found below.

"We look forward to sharing our new data highlighting our commitment to continued clinical investigation with treatment options for patients with HRS, like TERLIVAZ, as well as addressing the real-world impact that HRS and current treatment plans impart upon patients and healthcare systems from a cost and outcomes perspective,^[3,4]" said **Khurram Jamil, Vice President, Hepatology, Clinical Development & Critical Care**. "These findings not only have important implications for how the medical community defines and achieves treatment goals, but also help to raise awareness, and ultimately drive action, for the persistent clinical and economic burden HRS patients in the U.S. face."

These studies are sponsored by Mallinckrodt Pharmaceuticals and include:

Poster #10: Treatment-Related Cost Analysis for Adults with Hepatorenal Syndrome with Rapid Reduction in Kidney Function^[3]

- **Presenter:** Xingyue Huang, PhD, Senior Director, HEOR, Critical Care at Mallinckrodt
- **Presentation Date:** Wednesday, April 12, 2023; 6:00 – 7:30PM CDT
- **Location:** Exhibit Hall 4, Austin Convention Center

Poster #20: A Reduction in Serum Creatinine of at Least 30% Leads to Meaningful Clinical Outcomes in Patients with Hepatorenal Syndrome Type 1: A Pooled Analysis of 3 Phase III Studies^[4]

- **Presenter:** Muhammad Ahmad Mujtaba, MD, University of Texas Medical Branch
- **Presentation Date:** Wednesday, April 12, 2023; 6:00 – 7:30PM CDT
- **Location:** Exhibit Hall 4, Austin Convention Center

Find more information on the National Kidney Foundation (NKF) 2023 Spring Clinical Meeting (SCM) [website](#).

INDICATION AND LIMITATION OF USE

TERLIVAZ is indicated to improve kidney function in adults with hepatorenal syndrome with rapid reduction in kidney function.

- Patients with a serum creatinine >5 mg/dL are unlikely to experience benefit.

IMPORTANT SAFETY INFORMATION

WARNING: SERIOUS OR FATAL RESPIRATORY FAILURE

- **TERLIVAZ may cause serious or fatal respiratory failure. Patients with volume overload or with acute-on-chronic liver failure (ACLF) Grade 3 are at increased risk. Assess oxygenation saturation (e.g., SpO₂) before initiating TERLIVAZ.**
- **Do not initiate TERLIVAZ in patients experiencing hypoxia (e.g., SpO₂ <90%) until oxygenation levels improve. Monitor patients for hypoxia using continuous pulse oximetry during treatment and discontinue TERLIVAZ if SpO₂ decreases below 90%.**

Contraindications

TERLIVAZ is contraindicated:

- In patients experiencing hypoxia or worsening respiratory symptoms.
- In patients with ongoing coronary, peripheral, or mesenteric ischemia.

Warnings and Precautions

- **Serious or Fatal Respiratory Failure:** Obtain baseline oxygen saturation and do not initiate TERLIVAZ in hypoxic patients. Monitor patients for changes in respiratory status using continuous pulse oximetry and regular clinical assessments. Discontinue TERLIVAZ in patients experiencing hypoxia or increased respiratory symptoms.

Manage intravascular volume overload by reducing or discontinuing the administration of albumin and/or other fluids and through judicious use of diuretics. Temporarily interrupt, reduce, or discontinue TERLIVAZ treatment until patient volume status improves. Avoid use in patients with ACLF Grade 3 because they are at significant risk for respiratory failure.

- **Ineligibility for Liver Transplant:** TERLIVAZ-related adverse reactions (respiratory failure, ischemia) may make a patient ineligible for liver transplantation, if listed. For patients with high prioritization for liver transplantation (e.g., MELD ≥35), the benefits of TERLIVAZ may not outweigh its risks.
- **Ischemic Events:** TERLIVAZ may cause cardiac, cerebrovascular, peripheral, or mesenteric ischemia. Avoid use of TERLIVAZ in patients with a history of severe cardiovascular conditions or cerebrovascular or ischemic disease. Discontinue TERLIVAZ in patients who experience signs or symptoms suggestive of ischemic adverse reactions.
- **Embryo-Fetal Toxicity:** TERLIVAZ may cause fetal harm when administered to a pregnant woman. If TERLIVAZ is used during pregnancy, the patient should be informed of the potential risk to the fetus.

Adverse Reactions

- The most common adverse reactions (≥10%) include abdominal pain, nausea, respiratory failure, diarrhea, and dyspnea.

Please [click here](#) to see full Prescribing Information, including Boxed Warning.

About Hepatorenal Syndrome (HRS)

Hepatorenal syndrome (HRS) involving rapid reduction in kidney function¹ is an acute and life-threatening condition that occurs in people with advanced liver disease.² HRS is classified into two distinct types – a rapidly progressive type that leads to acute renal failure where patients are typically hospitalized for their care and a more chronic type that progresses over weeks to months.² HRS involving rapid reduction in kidney function¹ is estimated to affect between 30,000 and 40,000 Americans annually.^[5,6] If left untreated, HRS with rapid reduction in kidney function¹ has a median survival time of approximately two weeks and greater than 80 percent mortality within three months.^[7]

ABOUT MALLINCKRODT

Mallinckrodt is a global business consisting of multiple wholly owned subsidiaries that develop, manufacture, market and distribute specialty pharmaceutical products and therapies. The company's Specialty Brands reportable segment's areas of focus include autoimmune and rare diseases in specialty areas like neurology, rheumatology, hepatology, nephrology, pulmonology, ophthalmology, and oncology; immunotherapy and neonatal respiratory critical care therapies; analgesics; cultured skin substitutes and gastrointestinal products. Its Specialty Generics reportable segment includes specialty generic drugs and active pharmaceutical ingredients. To learn more about Mallinckrodt, visit www.mallinckrodt.com.

Mallinckrodt uses its website as a channel of distribution of important company information, such as press releases, investor presentations and other financial information. It also uses its website to expedite public access to time-critical information regarding the company in advance of or in lieu of distributing a press release or a filing with the U.S. Securities and Exchange Commission (SEC) disclosing the same information. Therefore, investors should look to the Investor Relations page of the website for important and time-critical information. Visitors to the website can also register to receive

automatic e-mail and other notifications alerting them when new information is made available on the Investor Relations page of the website.

CAUTIONARY STATEMENTS RELATED TO FORWARD-LOOKING STATEMENTS

This release includes forward-looking statements, including with regard to TERLIVAZ, its potential impact on patients. The statements are based on assumptions about many important factors, including the following, which could cause actual results to differ materially from those in the forward-looking statements: satisfaction of regulatory and other requirements; actions of regulatory bodies and other governmental authorities; changes in laws and regulations; issues with product quality, manufacturing or supply, or patient safety issues; and other risks identified and described in more detail in the "Risk Factors" section of Mallinckrodt's most recent Annual Report on Form 10-K and other filings with the SEC, all of which are available on its website. The forward-looking statements made herein speak only as of the date hereof and Mallinckrodt does not assume any obligation to update or revise any forward-looking statement, whether as a result of new information, future events and developments or otherwise, except as required by law.

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References

[1] TERLIVAZ® (terlipressin) for injection. [Prescribing Information]. Mallinckrodt Hospital Products Inc.

[2] National Organization for Rare Disorders. Hepatorenal Syndrome. Available at: <https://rarediseases.org/rare-diseases/hepatorenal-syndrome/>. Accessed March 28, 2023.

[3] Huang X, Bindra J, Chopra I, Niewoehner J, Wan GJ. Treatment-Related Cost Analysis for Adults with Hepatorenal Syndrome with Rapid Reduction in Kidney Function. *Abstract to be presented at the National Kidney Foundation (NKF) 2023 Spring Clinical Meeting (SCM)*. April 2023.

[4] Mujtaba MA, Zafar Z, Jamil K. A Reduction in Serum Creatinine of at Least 30% Leads to Meaningful Clinical Outcomes in Patients with Hepatorenal Syndrome Type 1: A Pooled Analysis of 3 Phase III Studies. *Abstract to be presented at the National Kidney Foundation (NKF) 2023 Spring Clinical Meeting*. April 2023.

[5] C Pant, B S Jani, M Desai, A Deshpande, Prashant Pandya, Ryan Taylor, R Gilroy, M Olyaaee. Hepatorenal syndrome in hospitalized patients with chronic liver disease: results from the Nationwide Inpatient Sample 2002-2012. *J of Investig Med*. 2016; 64:33-38.

[6] United States Census Bureau: Quick Facts. Available at: <https://www.census.gov/quickfacts/fact/table/US/PST045218>. Accessed March 28, 2023.

[7] Flamm, S.L., Brown, K., Wadei, H.M., et al. The Current Management of Hepatorenal Syndrome—Acute Kidney Injury in the United States and the Potential of Terlipressin. *Liver Transpl*. 2021;27:1191-1202. <https://doi.org/10.1002/lt.26072>.

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