First Real-world Experience Administering Etranacogene Dezaparvovec Gene Therapy for People with Hemophilia B

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Background

- Etranacogene dezaparvovec-drlb (CSL Behring) is the first gene therapy for hemophilia B to be approved by the US Food and Drug Administration[1] (2022), the European Medicines Agency[2] (2023), and Health Canada (2023)[3]
- The gene therapy treatment journey is a multistep process that requires coordination between multiple stakeholders within a hemophilia treatment center (HTC) and potentially between multiple HTCs[4]
- Experience sharing is critical for HTC teams to fully understand and appropriately implement each step of the gene therapy process
- The first patients to receive etranacogene dezaparvovec-drlb outside of clinical trials were infused at the Hemophilia Outreach Center in Green Bay, Wisconsin, and the University of South Florida in Tampa, Florida

Objective

- **To describe the process by which the HTCs prepared their centers to administer etranacogene dezaparvovec-drlb**

Site Preparedness

STAKEHOLDER EDUCATION

- Early education, both for HTC stakeholders and patients, was critical in addressing key steps in the treatment journey (see figure below)
- The education was iterative, involved multiple stakeholders (see key in figure below), and required open communication between the HTCs, the patients, and the manufacturer (when appropriate)

PROTOCOL DEVELOPMENT

- The HTCs developed center-specific protocols, checklists, and worksheets based on the key steps in the gene therapy clinical process (**Table 1**)
- These protocols provided clear guidance on the execution of every step of the process in addition to providing a contingency plan for different scenarios (e.g., infusion reactions and transaminitis), ensuring the center's preparedness for administration

PRACTICAL CONSIDERATIONS

- The HTCs established the care team (including the hematologist, pharmacist, and nursing staff, among others), assigned roles for administration day, and rehearsed administration day in advance
- The care team ensured the supplies for the management of potential infusion reactions were available if needed

MANUFACTURER SUPPORT

- The care team received education from the manufacturer through

Training	• Clinical administration training • Operational training – Ordering – Receiving – Neutralizing antibody testing
Resources	• A detailed handbook describing the gene therapy process as it relates to etranacogene dezaparvovec-drlb • Etranacogene dezaparvovec-drlb preparation and administration video

- The manufacturer facilitated discussions focused on practical considerations for clinical excellence
- A dedicated team from the manufacturer was also present on infusion day to provide on-site support

Clinical Journey in Gene Therapy in a Hemophilia Treatment Center

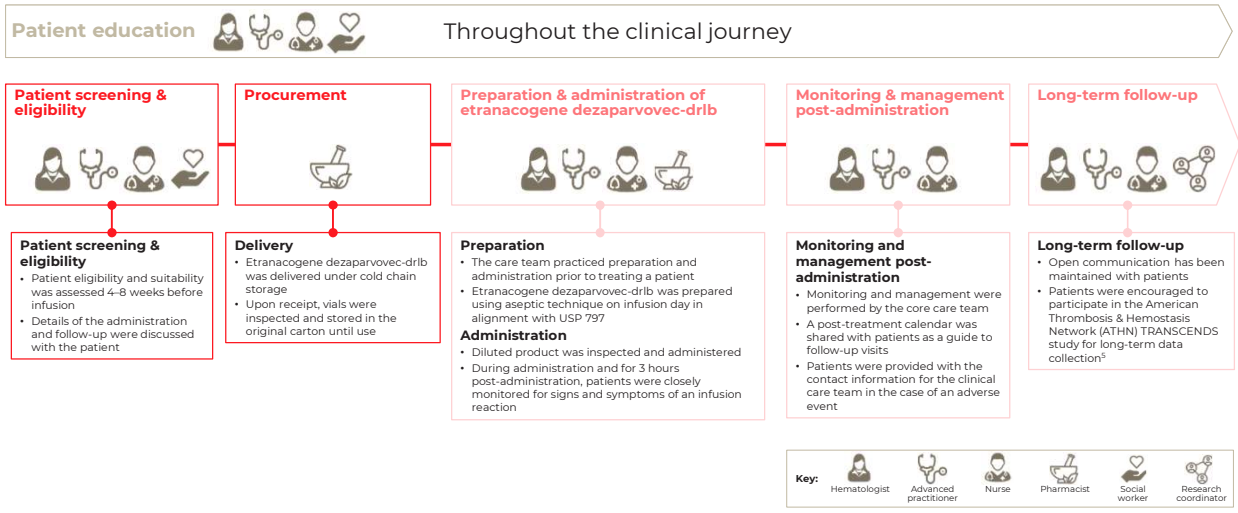

Table 1. Center-specific Documents Developed for the Clinical Journey in Gene Therapy

CENTER-SPECIFIC DOCUMENT	RELATED STEP IN CLINICAL JOURNEY
EVALUATION WORKSHEET	Patient screening and eligibility
PATIENT AGREEMENT FORM	Patient screening and eligibility
HANDLING AND PREPARATION POLICY	Procurement
INFUSION DAY CHECKLIST	Preparation and administration
ADMINISTRATION POLICY	Preparation and administration
INFUSION REACTION PROTOCOL	Preparation and administration
MONITORING POLICY	Monitoring and management post-administration
CORTICOSTEROID TREATMENT IN RESPONSE TO ALT ELEVATIONS PROTOCOL	Monitoring and management post-administration
POST-TREATMENT CALENDAR	Monitoring and management post-administration
LONG-TERM MONITORING POLICY	Long-term follow-up

ALT, alanine aminotransferase.

Key Takeaways

- **Multiple stakeholders, including hematologists, advanced practitioners, nurses, pharmacists, social workers, and research coordinators, are involved in the clinical journey of gene therapy for hemophilia B**
- **Early and iterative education, developing center-specific protocols, and applying practical considerations are crucial to ensure smooth execution and optimal patient outcomes when administering gene therapy at HTCs**
- **Long-term patient follow-up and communication across HTCs are essential to understanding an individual patient's journey and maintaining optimal hemophilia care**

References

1. HEMGENIX. Prescribing Information. CSL Behring LLC. https://labeling.cslbehring.com/PI/US/Hemgenix/EN/Hemgenix-Prescribing-Information.pdf. Accessed September 13, 2023.
2. HEMGENIX. Summary of Product Characteristics. CSL Behring LLC. https://www.ema.europa.eu/en/documents/product-information/hemgenix-epar-product-information_en.pdf. Accessed September 13, 2023.
3. HEMGENIX. Product Monograph. CSL Behring LLC. https://labeling.cslbehring.ca/PM/CA/hemgenix/EN/Hemgenix-Product-Monograph.pdf. Accessed February 9, 2024.
4. Le Quellec S, et al. Poster P129. Presented at: European Society of Gene and Cell Therapy 29th Congress in collaboration with British Society for Gene and Cell Therapy; October 11–14, 2022; Edinburgh, Scotland.
5. American Thrombosis & Hemostasis Network. https://athn.org/what-we-do/national-projects/athn-projects-and-research-studies.html. Accessed September 20, 2023.

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