VELETRI® (epoprostenol)
VELETRI - Stability of Infusion Solutions at a Concentration of Less Than 3000 ng/mL

SUMMARY

- A publication described the stability of reconstituted and diluted solutions of VELETRI for infusion at epoprostenol concentrations of <3000 ng/mL. The stability of VELETRI for infusion solutions with epoprostenol concentrations of 200, 500, and 1000 ng/mL was assessed for up to 24 hours either under refrigeration or at room temperature under diffuse lighting conditions. When stored in the refrigerator, all three solutions retained ≥90% potency for up to 24 hours. When stored at room temperature, the 500 and 1000 ng/mL solutions retained ≥90% potency for up to 24 hours, while the 200 ng/mL solution retained ≥90% potency for up to 4 hours.[1]
- Studies have shown that as the dilution of VELETRI for infusion increases (ie, epoprostenol concentration decreases), the stability of VELETRI in solution decreases. Also, the pH of VELETRI for infusion solution decreases with increased dilution.[1,2]

CLINICAL DATA

Furuishi et al (2014)[1] assessed the stability of VELETRI for infusion (referred to by the authors as Epoprostenol "ACT") at concentrations ranging from 200 to 30,000 ng/mL. It is stated that the rationale for assessing the stability of VELETRI for infusion at epoprostenol concentrations of <3000 ng/mL (specifically, at 200, 500, and 1000 ng/mL) was that neonatal and infant patients might be administered at low doses of VELETRI for the treatment of pulmonary arterial hypertension (PAH), requiring such concentrations in a hospital setting. Stability of VELETRI for infusion solutions was quantified as the percentage of residual epoprostenol at a given time point relative to time zero (hereby referred to as "residual potency"), as assessed by high-performance liquid chromatography. The residual potency of the 200, 500, and 1000 ng/mL solutions was assessed after 4, 8, and 24 hours when stored in the refrigerator (5°C) or at room temperature under diffuse light. When stored at 5°C in the refrigerator, all three solutions had ≥90% residual potency up to 24 hours. When stored at room temperature under diffused light, the 500 and 1000 ng/mL solutions had ≥90% residual potency up to 24 hours while the solution at 200 ng/mL epoprostenol had ≥90% residual potency up to 4 hours and <90% residual potency after 8 hours. The starting pH of each solution (9.4, 10.0, and 10.4 for the 200, 500, and 1000 ng/mL solution, respectively) remained similar over the time course of the experiment.[1]

Of note, a conclusion from both the study described above[1] and an earlier study[2] that assessed the stability of VELETRI for infusion at epoprostenol concentrations of 3000, 15,000 and 60,000 ng/mL is that the stability of VELETRI decreases with increased dilution of VELETRI for infusion.[1,2] In addition, pH decreases with increased dilution of VELETRI for infusion solution.[1,2]

LITERATURE SEARCH

A literature search of MEDLINE®, Embase®, BIOSIS Previews®, and Derwent Drug File (and/or other resources, including internal/external databases) pertaining to this topic was conducted on 21 August 2024.

REFERENCES

1. Furuishi T, Katoh H, Maekawa Y, et al. Stability of Epoprostenol "ACT" in saline solution. *J New Rem Clin*. 2014;63(6):887-893.

2. Lambert O, Bandilla D. Stability and preservation of a new formulation of epoprostenol sodium for treatment of pulmonary arterial hypertension. *Drug Des Devel Ther*. 2012;6:235-244.