Antihemophilic Factor/von Willebrand Factor Complex (Human) (Factor VIII Complex)

Brand names	Alphante, Humate-P, Wilate
Medication error potential	Factor VIII may be confused with Factor XIII.[1]
Contraindications and warnings	**Contraindications:** Hypersensitivity or intolerance to any component in the product.[1-4] **Other warnings:** Alphanate and Wilate contain polysorbate 80, which may cause allergic reactions in susceptible individuals, especially neonates.[2,4] Human antihemophilic factor (AHF) products are prepared from human pooled plasma and may carry a risk for transmission of infectious agents, despite viral attenuation processes.[2-7] Hepatitis A and B vaccination are recommended in all hemophilia patients.[5,6] Thromboembolic events have been reported in von Willebrand patients receiving AHF/von Willebrand factor complex, especially in cases of other known thromboembolic risk factors and in females: use caution in these patients.[1-4] Massive doses of AHF/von Willebrand factor complex have been associated with a few cases of acute hemolytic anemia, increased bleeding tendency or hyperfibrinogenemia, which resolve upon discontinuation of the product.[8] Alphanate and Humate P contain blood group specific isoagglutinins and patients with blood groups A, B, or AB who receive large or frequent doses should be monitored for signs on intravascular hemolysis and decreasing hematocrit and treated appropriately.[2,3] Patients treated with AHF products should be carefully monitored for the development of Factor VIII inhibitors by appropriate clinical observations and laboratory tests. Inhibitors have been reported following administration of these products, predominantly children <5 years of age. The risk of developing inhibitors is highest during the first 20 exposure days. If expected plasma Factor VIII activity levels are not attained, or if bleeding is not controlled with an expected dose, an assay that measures Factor VIII inhibitor concentration should be performed. Patients with von Willebrand disease (vWD), especially type 3, may potentially develop inhibitors to von Willebrand factor. Since inhibitor antibodies may occur concomitantly with anaphylactic reactions, patients with anaphylactic reactions should be evaluated for the presence of inhibitors.[1-4]
Infusion-related cautions	All products have been associated with anaphylaxis-type reactions. Reduce infusion rate or temporarily discontinue if patient experiences tachycardia or allergic-type reaction.[1-4]
Dosage	**Individualize dosage based on coagulation studies performed prior to treatment and at regular intervals during treatment.** **Hemophilia A:** For every 1 international unit/kg body weight of product administered, Factor VIII level should increase by 2 international units/dL or 2%; calculated dose should be adjusted to the actual vial size.[1-3] Formula to calculate dosage required, based on desired increase in Factor VIII (% of normal). **Note:** This formula assumes that the patient's baseline AHF level is <1%: international units required = body weight kg) × 0.5 × desired increase in Factor VIII (international units/dL or % of normal).[1-3] Consult individual product labeling for specific dosing recommendations.[2,3,5] **Minor hemorrhage:** Loading dose, FVIII:C 15 international units/kg to achieve FVIII:C levels to 30% of normal. One infusion may be sufficient. **Alphanate:** 15 international units Factor VIII/kg q 12 hr until hemorrhage stops and healing has been achieved (about 1–2 days).[2] **Humate P:** 7.5 international units Factor VIII/kg q 12–24 hr until hemorrhage stops and healing has been achieved (about 1–2 days).[3]

Antihemophilic Factor/von Willebrand Factor Complex (Human) (Factor VIII Complex)

Dosage *(cont.)*

Moderate hemorrhage: Loading dose, FVIII:C 25 international units/kg to achieve FVIII:C levels to 50% of normal

Alphanate: 25 international units Factor VIII/kg q 12 hr until healing has been achieved (about 2–7 days).[2]

Humate P: 15 international units Factor VIII/kg q 8–12 hr for first 1–2 days to maintain FVIII:C plasma level at 30% of normal. Continue 15 international units Factor VIII/kg q 12–24 hr for up to 7 days or until healing has been achieved.[3]

Severe/life-threatening hemorrhage: Loading dose, FVIII:C 40–50 international units/kg

Alphanate: 40–50 international units Factor VIII/kg q 12 hr to maintain FVIII:C levels at 80% to 100% of normal for at least 3–5 days. Then, 25 international units Factor VIII/kg q 12 hr to maintain FVIII levels at 50% of normal until healing has been achieved. May require up to 10 days of treatment.[2]

Humate P: 20–25 international units Factor VIII/kg q 8 hr to maintain FVIII:C plasma level at 80% to 100% of normal for 7 days. Continue 20–25 international units Factor VIII/kg q 12–24 hr for up to 7 days to maintain the FVIII:C level at 30% to 50% of normal.[3]

Surgery

Alphanate: Preoperatively, FVIII:C levels should be increased to 80% to 100% of normal; loading dose of 40–50 international units Factor VIII/kg. Maintain FVIII levels at 60% to 100% of normal for first 7–10 postoperative days or until healing is achieved, approximately 30–50 international units Factor VIII/kg q 12 hr.[2]

vWD bleeding episode treatment (*use Humate P product*): Individualize dosage based on coagulation studies performed prior to treatment and at regular intervals during treatment. Generally, for every 1 international unit/kg body weight of Factor VIII administered, von Willebrand factor: Ristocetin cofactor (vWF:RCo) level should increase by about 5 international units/dL.[3,9]

Type 1, mild (baseline vWF:RCo activity typically >30%)

Minor hemorrhage when desmopressin inadequate or major hemorrhage: Loading dose of 40–50 international units/kg, followed by 40–50 international units/kg q 8–12 hr for 3 days to maintain trough vWF:RCo >50%. Then, 40–50 international units/kg q 24 hr for up to 7 days.[3]

Type I, moderate or severe (baseline vWF:RCo activity typically <30%)

Minor hemorrhage: 40–50 international units/kg for 1–2 doses

Major hemorrhage: Loading dose of 50–75 international units/kg, followed by 40–60 international units/kg q 8–12 hr for 3 days to maintain trough vWF:RCo >50%. Then, 40–60 international units/kg q 24 hr for up to 7 days.[3]

Type 2 (all variants) and Type 3

Minor hemorrhage: 40–50 international units/kg for 1–2 doses

Major hemorrhage: Loading dose of 60–80 international units/kg, followed by 40–60 international units/kg q 8–12 hr for 3 days to maintain trough vWF:RCo >50%. Then, 40–60 international units/kg q 24 hr for up to 7 days.[3]

vWD minor and major hemorrhage (use Wilate product)[4,5,10]

Minor hemorrhages: Loading dose of 20–40 international units/kg. Maintenance 20–30 international units/kg q 12–24 hr for up to 3 days to maintain vWF:RCo and Factor VIII activity trough levels of >30%.

Major hemorrhages: Loading dose of 40–60 international units/kg. Maintenance 20–40 international units/kg q 12–24 hr for up to 5–7 days to maintain vWF:RCo and Factor VIII activity trough levels >50%.