

Prior Authorization DRUG Guidelines

ORFADIN (Nitisinone)

Effective Date: 1/28/14

Date Developed: 1/28/14 by Catherine Sanders, MD

Last Approval Date: 1/26/16, 1/24/17, 1/23/18, 1/22/19, 2/18/20,
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Orfadin is a 4-Hydroxyphenylpyruvate Dioxygenase Inhibitor used for the treatment of hereditary tyrosinemia type 1 (HT-1). In patients with HT-1, tyrosine metabolism is interrupted due to a lack of the enzyme (fumarylacetoacetate hydrolase) needed in the last step of tyrosine degradation. Toxic metabolites of tyrosine accumulate and cause liver and kidney toxicity. Nitisinone competitively inhibits 4-hydroxyphenyl-pyruvate dioxygenase, an enzyme present early in the tyrosine degradation pathway, thereby preventing the build-up of the toxic metabolites.

Pre-Authorization Criteria:

Treatment of hereditary tyrosinemia type 1 (HT-1) as an adjunct to dietary restriction of tyrosine and phenylalanine-containing foods.

NOTE: Orfadin must be used with dietary restriction of tyrosine and phenylalanine; inadequate restriction can result in toxic effects to the eyes, skin, and nervous system. Evaluate plasma tyrosine concentrations in patients who develop signs and symptoms of toxicity. Nutritional consultation is required.

NOTE: VCHCP requires that Orfadin be prescribed by a physician specializing in the condition being treated.

NOTE: Distributed by Rare Disease Therapeutics, Inc; for information regarding acquisition of product, call Accredo Health Group, Inc at 1-888-454-8860

Dosing: Adult:

Oral: Initial: 0.5 mg/kg twice daily. Increase to 0.75 mg/kg twice daily if succinylacetone is detectable 4 weeks after initiation. Further increase may be needed based on the evaluation of all biochemical parameters (maximum dose: 2 mg/kg/day); dose may be administered once daily (eg, 1 to 2 mg/kg once daily) if serum and urine succinylacetone is undetectable after ≥4 weeks of therapy.

NOTE: Titrate dose as needed based on biochemical and/or clinical response. If the biochemical response is satisfactory, the dosage should be adjusted only according to body weight gain. Do not adjust dose according to plasma tyrosine

Dosage Forms: U.S.:

Capsule: 2 mg, 5 mg, 10 mg

Adverse Reactions:

Increased plasma tyrosine; Alopecia, dry skin exfoliative dermatitis, rash, pruritus, thrombocytopenia, leukopenia, epistaxis, granulocytopenia, porphyria, hepatic neoplasm, hepatic failure, conjunctivitis, corneal opacity, dermatitis, photophobia, blepharitis, cataracts, eye pain

References:

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2. Holme E and Lindstedt S, "Nontransplant Treatment of Tyrosinemia," *Clin Liver Dis*, 2000, 4(4):805-14. [PubMed [11232358](#)]
3. Lindstedt S, Holme E, Lock EA, et al, "Treatment of Hereditary Tyrosinaemia Type 1 by Inhibition of 4-Hydroxyphenylpyruvate Dioxygenase," *Lancet*, 1992, 340(8823):813-7. [PubMed [1383656](#)]
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6. Orfadin (nitisinone) [prescribing information]. Waltham, MA: Sobi Inc; November 2021~~May 2019~~.
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8. Medina MF, Arias C, Cabello JF, et al. Case report: maternal tyrosinemia type 1a under NTBC treatment with tyrosine- and phenylalanine restricted diet in Chile. *Am J Med Genet C Semin Med Genet*. 2020;184(4):1009-1013
9. Vanclooster A, Devlieger R, Meersseman W, et al. Pregnancy during nitisinone treatment for tyrosinaemia type I: first human experience. *JIMD Rep*. 2012;5:27-33.

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