

Peginterferon alfa-2a (*Pegasys*)

Table of Contents

- [Peginterferon alfa-2a *Pegasys* Summary](#)
- [Drug Summary](#)
- [Adverse Effects](#)
- [Class and Mechanism](#)
- [Indications](#)
- [Dosing](#)
- [Cost and Medication Access](#)
- [Key Drug Interactions](#)
- [Full Prescribing Information](#)
- [Figures](#)

Drug Summary

Peginterferon alfa-2a ([Figure 1](#)) and ([Figure 2](#)) and ([Figure 3](#)) played a role in the treatment of chronic hepatitis C prior to the availability of direct-acting antiviral agents. Peginterferon alfa-2a is no longer recommended for the treatment of hepatitis C due to relatively poor efficacy and high rate of adverse effects.

Adverse Effects

In most patients, peginterferon alfa-2a causes numerous problematic side effects. In clinical studies involving peginterferon alfa-2a, the following adverse effects were reported most often: headache, fatigue, and influenza-like symptoms, including myalgia, pyrexia, arthralgia, nausea, and anorexia. In addition, significant hematologic toxicity can occur due to peginterferon alfa-2a, including neutropenia and thrombocytopenia. Patients can develop ophthalmologic disorders and all patients should receive a baseline eye examination and should have a prompt eye examination if they develop ocular symptoms. Neuropsychiatric effects such as insomnia, depression, and irritability can also occur. Peginterferon alfa-2a may cause or aggravate life-threatening neuropsychiatric, autoimmune, ischemic, or infectious disorders. Further, the use of peginterferon in patients with cirrhosis can cause life-threatening hepatic decompensation. To report suspected adverse reactions, contact (1) Genetech at 1-888-835-2555 or (2) the FDA at 1-800-FDA-1088.

Class and Mechanism

Peginterferon alfa-2a consists of interferon alfa-2a covalently linked to a 40-kd branched polyethylene glycol (PEG). The biologic activity of peginterferon-alfa-2a derives from its interferon alfa-2a moiety, which impacts both adaptive and innate immune responses against hepatitis C virus. This alpha interferon binds to and activates human type 1 interferon receptors on hepatocytes which activates multiple intracellular signal transduction pathways, culminating in the expression of interferon-stimulated genes that produce an array of antiviral effects, such as blocking viral protein synthesis and inducing viral RNA mutagenesis. Compared with the native interferon alfa-2a, the peginterferon alfa-2a has sustained absorption, delayed clearance, and a prolonged half life.

Indications

Peginterferon alfa-2a is indicated, in combination with ribavirin, for the treatment of chronic hepatitis C (HCV) in patients 5 years and older with compensated liver disease, including patients with HCV and HIV coinfection (with a CD4 count greater than 100 cells/mm³). In addition, peginterferon alfa-2a is indicated in combination with ribavirin and an approved HCV NS3/4A protease inhibitor in adult patients with genotype 1 HCV infection. Use of peginterferon alfa-2a is contraindicated in patients with autoimmune hepatitis, hepatic decompensation in patients with cirrhosis, and in patients with a known hypersensitivity reaction to any form of alfa interferon.

Dosing

Peginterferon alfa-2a is available as a 180 mcg/1.0 ml vial for single use, a 180 mcg/0.5 ml prefilled syringe for single use ([Figure 2](#)), a 180 mcg/0.5 ml autoinjector for single use ([Figure 3](#)), and a 135 mcg/0.5 ml autoinjector for single use. In adults, the recommended dose of peginterferon alfa-2a is 180 mcg subcutaneously administered once weekly in the abdomen or thigh. The 180-mcg dose is the recommended initial starting dose, regardless of the patient's weight or HCV genotype. The dose of peginterferon alfa-2a may require modification as outlined below.

- **Leukopenia:** The dose of peginterferon alfa-2a should be reduced to 135 mcg in patients who have an absolute neutrophil count (ANC) that declines to less than 750 cells/mm³; if the ANC declines to less than 500 cells/mm³, discontinue peginterferon alfa-2a until the ANC rises to greater than 1000 cells/mm³ and then restart at 90 mcg with close monitoring of the ANC.
- **Thrombocytopenia:** The dose of peginterferon alfa-2a should be reduced to 90 mcg in patients who have a decline in platelet count to a less than 50,000 cells/mm³; discontinue therapy if the platelet count declines to less than 25,000 cells/mm³.
- **Renal Insufficiency:** If the creatinine clearance is less than 30 mL/min or the patient is on hemodialysis, the dose of peginterferon alfa-2a should be reduced to 135 mcg and the patient should have close monitoring for any signs of medication toxicity. If toxicity (laboratory or clinical) develops, the dose of peginterferon alfa-2a can be reduced further to 90 mcg.
- **Increased Alanine Transaminase (ALT):** In patients who have persistent elevations in ALT levels above baseline, the recommendation is to have increased frequency of monitoring and reduce the dose of peginterferon alfa-2a to 135 mcg.
- **Depression:** the dose of peginterferon alfa-2a may need adjusting in patients who develop

depression. In general, mild depression does not require a dose adjustment, but does warrant close monitoring. For moderate depression, the dose of peginterferon alfa-2a should be reduced to 135 mcg (or 90 mcg in some instances), with close follow-up and consideration for psychiatric consultation. With severe depression, therapy should be discontinued and the patient should immediate psychiatric consultation should be obtained.

Cost and Medication Access

For information regarding coverage, reimbursement, and patient assistance for peginterferon alfa-2a (*Pegasys*), visit the [Access Solutions](#) website or call 1-888-941-3331. This is the same patient assistance program for the Genetech manufactured ribavirin (*Copegus*).

Key Drug Interactions

For complete information on peginterferon alfa-2a-related drug interactions, see the [Drug Interactions section in the Peginterferon alfa-2a \(Pegasys\) Prescribing Information](#).

Full Prescribing Information

[Peginterferon alfa-2a \(Pegasys\) Full Prescribing Information](#).

Figures

[Figure 1. Packaging - Peginterferon alfa-2a \(Pegasys\)](#)

Photo: Andrew Karpenko, University of Washington

[Figure 2. Single Use Syringe - Peginterferon alfa-2a \(Pegasys\)](#)

Photo: Andrew Karpenko, University of Washington

[Figure 3. 180 mcg/0.5 ml autoinjector - Peginterferon alfa-2a \(Pegasys\)](#)

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