

Dupilumab for atopic dermatitis

Atopic dermatitis, or eczema, is a chronic, inflammatory skin disease. The first line of treatment generally includes moisturizer and topical medications. There are some pediatric patients who have moderate to severe atopic dermatitis that is uncontrolled with these topical treatments alone. In these patients, systemic medications are needed for proper management and control.

WHAT IS DUPILUMAB AND HOW DOES IT WORK?

Dupilumab is a "biologic" medication called a monoclonal antibody. It was created to target a specific part of the immune system. It targets the receptor that allows two proteins to cause the inflammation in atopic dermatitis. These proteins are called cytokines. The ones targeted in atopic dermatitis are called interleukin 4 and interleukin 13. These cytokines are part of a family of proteins that are involved in the type 2 immune response. This immune response leads to atopic dermatitis, asthma, and various forms of allergy.

WHEN SHOULD I CONSIDER DUPILUMAB FOR MY CHILD'S ATOPIC DERMATITIS?

- » Dupilumab may be considered for atopic dermatitis management in a number of different circumstances (e.g., when your doctor determines your child has atopic dermatitis that has not improved enough with proper use of moisturizer and topical medications.) Proper use means use of the right strength and frequency of application.
- » When phototherapy (a type of light treatment) or other systemic medications have failed to control the atopic dermatitis.
- » When topical medication or other systemic medications cannot be used in your child.
- » When atopic dermatitis is affecting your child's quality of life extensively. Uncontrolled atopic dermatitis can also affect the quality of life of the entire family.

HOW IS DUPILUMAB DOSED AND GIVEN?

Dupilumab is approved for the treatment of atopic dermatitis in children six years of age and older. It is given by a subcutaneous injection. It comes as a pre-filled syringe or a pre-filled pen. The pre-filled syringe is often used when someone else gives dupilumab to your child. The pre-filled pen can be given by pressing directly on skin without pinching it.

The most common sites for injections are the stomach, thighs, or upper outer arms. Ideally, these sites are used on a rotating basis. If there is a bruise or other abnormal skin finding at the site where you plan to inject, avoid this area and choose a different location.

WHAT ARE THE POSSIBLE SIDE EFFECTS OF DUPILUMAB?

Most patients tolerate dupilumab well, but there are possible side effects. Side effects related to its use are unusual and develop in a small minority of those treated.

The most common side effects involve the eyes. Some of the reported changes include eye redness, burning, dryness, excessive tearing, swelling, irritation or pain. If any new eye issues develop after starting dupilumab, you should let your child's doctor know, as special treatment might be needed.

Another common side effect is an **injection site reaction** with redness and swelling at the site of the injection. If this occurs, it is usually not severe and clears quickly.

Facial rash or redness has been reported after starting dupilumab and there are rare reports of children developing psoriasis or a form of hair loss.

Allergic reactions have rarely been reported. This can require immediate medical attention.

Less common side effects have also been reported. If your child develops any new symptoms while taking dupilumab, let your health care providers know.

WHAT ARE THE BENEFITS OF TAKING DUPILUMAB?

The majority of children and teenagers taking dupilumab experience improvement in the redness, scaling, and itch of atopic dermatitis. This is accompanied by reduction in skin infections. For many children treatment is life-changing and for some, the use of topical steroids is no longer needed at all.

Your doctor will determine if the patient or caregiver is able to give the injection. In patients older than 12, it is recommended that the injection be given by the patient and supervised by an adult. In patients younger than 12, it should be given by a caregiver/adult. Before starting the injections, training should be done so that your child and family know how to prepare and inject the dupilumab.

The amount of medication and frequency of use depends on age and weight:

- >> **In children six years of age and older weighing 60 kg or more:** Your child will receive 600 mg of dupilumab (two 300 mg injections) the first time. After this first dose, they will receive 300 mg (one injection) every other week.
- >> **In children six years of age and older weighing between 30 and 60 kg:** Your child will receive 400 mg of dupilumab (two 200 mg injections). After this first dose, they will receive 200 mg (one injection) every other week.
- >> **In children six years of age and older weighing between 15 and 30 kg:** Your child will receive 600 mg of dupilumab (two 300 mg injections). After this first dose, they will receive 300 mg every four weeks.
- >> **In children younger than six years of age:** The use of dupilumab is off-label (not FDA-approved) in this age group; the dose will be determined by your doctor.

ARE ANY TESTS OR PROCEDURES NEEDED BEFORE STARTING DUPILUMAB?

There are no standard tests that need to be done before starting dupilumab. The only contraindication to using this medication is an allergy to dupilumab or to any of the ingredients in it.

In pediatric patients, it is always recommended that the child's immunizations are up-to-date. It is also important to tell your doctor if you have a history of eye problems.

DO I CHANGE HOW I TREAT MY CHILD'S ATOPIC DERMATITIS WHILE ON DUPILUMAB?

Using dupilumab is not a cure for atopic dermatitis. Patients still need to continue using gentle skin care, moisturizer, and topical medications as needed. With ongoing use of dupilumab, the need for topical medications may decrease.

IS THERE ANYTHING I SHOULD BE AWARE OF WHILE MY CHILD IS ON DUPILUMAB?

There is no specific blood monitoring that needs to be done while on dupilumab. In general, live vaccines should be avoided while on biologic medications such as dupilumab. Some examples of live vaccines are nasal influenza, MMR (measles, mumps, and rubella), rotavirus, oral polio, varicella, typhoid, and yellow fever vaccines. You can find more information about vaccines in the Society for Pediatric Dermatology's Vaccine handout: <https://pedsderm.net/for-patients-families/patient-handouts/>

HOW LONG WILL MY CHILD TAKE DUPILUMAB?

The length of treatment with dupilumab varies from person to person. As atopic dermatitis is a chronic skin disease, many patients need to stay on the medication for a long time, but you should discuss this with your physician. It is important to continue to follow up with your doctor while using dupilumab to ensure proper treatment duration and access to the medication.



The Society for Pediatric Dermatology
8365 Keystone Crossing, Suite 107
Indianapolis, IN 46240
(317) 202-0224
www.pedsderm.net

Contributing SPD Members:
Irene Lara-Corrales, MD
Christine Lauren, MD

Committee Reviewers:
Heather Brandling-Bennett, MD
Sheilagh Maguiness, MD

Expert Reviewer:
Amy Paller, MD

The Society for Pediatric Dermatology and Wiley Publishing cannot be held responsible for any errors or for any consequences arising from the use of the information contained in this handout. Handout originally published in *Pediatric Dermatology*, Vol. 38, No. 5 (2021).

© 2021 The Society for Pediatric Dermatology