

Therapeutic approaches of allergic rhinitis: A review article

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Abstract

Allergic rhinitis is a common chronic illness that affects breathing and can make it hard to live a normal life. It can also make other conditions, like asthma, worse. Doctors choose the best way to help based on how sick the patient is and how old they are. People who are sick should learn about their illness and try not to come in contact with things that make them allergic. The best treatment for persistent symptoms that affect your life is using corticosteroid spray in your nose. It should be the first thing you try. If the first type of medicine doesn't work, more serious sickness can be treated with other types of medicine such as antihistamines and decongestants, or non-medicine treatments like cleaning your nose with water. If normal treatments don't work well for allergy symptoms and the person has allergic asthma, doctors may suggest subcutaneous or sublingual immunotherapy.

Keywords: *allergic; rhinitis, asthma; immunotherapy*

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Introduction

In the past 20 years, we have learned a lot more about allergic rhinitis. Scientists have found out more about the sickness and how it affects the body. They found new ways to help treat it by focusing on specific molecules and cells. These efforts have helped us understand how allergy medicines work or why they don't always work. (Han P et al., 2021)

Asthma and allergies can both make it hard to breathe, but they affect different parts of your lungs. Sometimes, cells and chemicals that cause swelling and irritation are the same and can affect the immune system in similar ways. This means that treatments that help one part of the airways might also be useful for treating another part. Doctors who want to treat a runny nose must also look at how medicines for asthma are being developed, because the treatments are still being tested. (Costanzo G et al.,2023)

Treatment options



Pharmacological therapy:

a- Antihistamines:

These are medicines called second-generation antihistamines. Doctors suggest trying these first for anyone with allergies like hay fever. They include medicines like Alerius, Allegra, Claritin and Reactin. New medicines called bilastine and rupatadine have been introduced in many countries to treat allergies. You can only get these antihistamines with a doctor's prescription. (Podder I *et al.* 2023).

Newer allergy medicines can help decrease sneezing, itching, and runny nose if taken consistently during the highest point of symptoms or before being exposed to an allergen. Medicines like diphenhydramine and chlorpheniramine can make you sleepy and help with allergy symptoms, but they may also make it harder to think and function well. (Small P *et al.*,2018).

b- Intranasal corticosteroids:

The best treatment for people with mild or strong allergies is nose sprays that have medicine in them. Sometimes, the sprays are used by themselves, or they can be used with pills that stop allergies. Using intranasal corticosteroids regularly and correctly helps reduce swelling in the lining of the nose and improves its health. (Espada-Sánchez M *et al.*,2023).

Research has found that using a nasal spray containing corticosteroids is better than taking antihistamines or LTRA in managing symptoms of allergic rhinitis. These symptoms include a stuffy or runny nose. It can help people with asthma and allergies to feel better in their eyes and breathing. (Subir J *et al.* 2023).

Nose sprays that help with allergies and inflammation are called intranasal corticosteroids. Some examples are Avamys, Beconase, Flonase, and Nasacort. Others include Nasonex, Omnaris, and Rhinocort.)(Rollema C *et al.* 2022).

To get the best results from nasal sprays, patients need to know how to use them correctly. It is best to start using intranasal corticosteroids just before you come into contact with something that causes an allergic reaction. You should use them regularly because it may take a few days to get the full benefits. (Daley-Yates PT *et al.* 2021).

The most usual things that can happen when using medicine that you put up your nose are that it might feel uncomfortable or tingly. Usually, you can stop these bad effects from happening if you don't spray too close to the middle of your nose. Some medicines for allergies may make kids grow more slowly. Two medicines called intranasal beclomethasone and triamcinolone do this, but others do not. There aren't enough studies that look at how regular amounts of something affect how we grow in the long run. (Wise SK *et al.* 2023).

When people with AR go to their doctor, they usually have strong symptoms and need a specific medication called intranasal corticosteroids. Many writers have found that intranasal corticosteroids can help people with moderate to severe symptoms. (Manjit Singh PK *et al.*,2022).

c- **Combination intranasal corticosteroid and antihistamine nasal spray:**

If nose sprays with corticosteroids don't work, you may try using a spray that has a mix of corticosteroids and antihistamines. A medicine called Dymista that has two ingredients, fluticasone propionate and azelastine hydrochloride, can now be found in many places. This spray that combines different medicines works better than when they are used separately. It is also safe, like other sprays that are put in the nose. (Yum HY *et al.* 2021).

d- **Leukotriene receptor antagonists (LTRAs):**

The medicines montelukast and zafirlukast can help treat AR. But they don't seem to work as well as nose sprays with corticosteroids. Some studies found that taking a type of medicine called LTRA along with antihistamines works just as well as using a different type of medicine called intranasal corticosteroids. However, other studies showed that if you use intranasal corticosteroids for a long time, it might not work as well to reduce symptoms at night. The medicine called montelukast works better than the mix of medicines. Montelukast is the only medicine that can be used to treat allergies in grown-ups. (Lee D *et al.* 2022).

If pills, nasal sprays or combination sprays don't work well or cause problems in treating allergy symptoms, try leukotriene receptor antagonists therapy. If taking pills, nasal sprays or combination sprays together with LTRAs doesn't help or causes issues, consider allergen immunotherapy. (Abdullah B *et al.* 2022).

e- **Other therapeutic options:**

Drugs that are taken by mouth or sprayed into the nose (like pseudoephedrine or phenylephrine) can make it easier to breathe when people have allergies. The negative effects of taking decongestants by mouth (like not being able to sleep, feeling restless or having a headache or heart palpitations) might make it hard to keep taking them for a long time. These medicines should not be given to people who have high blood pressure that is not being treated or have a serious heart condition called coronary artery disease. (Wahid NWB *et al.* 2023).

Using nasal decongestants for a long time can cause a problem called rebound nasal congestion. To avoid this, do not use these drugs for more than 3-5 days. Medicine called oral corticosteroids can help people who have really bad allergies and don't get better with other treatments like pills and nose sprays. (Alharthi AS *et al.*, 2022).

In simpler words: A medication called intranasal sodium cromoglycate can help with sneezing, runny nose, and nose itching, but it's not as good as a different type of medication called intranasal corticosteroids. Some people might still find it helpful though. If someone is pregnant and has allergies, their symptoms might get worse and they might need medication to treat it. Doctors have to think carefully about whether medicine is safe for pregnant women with AR. They need to consider both the good things and the bad things it could do. (Abdullah B *et al.* 2022).

During pregnancy, intranasal sodium cromoglycate can be the first treatment option for allergies. This is because chromones have not shown to cause birth defects in people or animals. During pregnancy, antihistamines can help with allergy symptoms. It's not safe to start or increase allergy shots while pregnant because it could harm the baby. Giving smaller amounts of medicine regularly during pregnancy is thought to be okay and works well. (Abdullah B *et al.* 2022).

f- Complementary and alternative medicines (CAM):

Because more and more people are using alternative medicine, doctors should ask patients if they're using it, without judging them. It's hard for doctors to know if alternative treatments for allergies work because there aren't enough good studies about them. (Khalili-Mahani N *et al.*,2021).

Some people with allergies want to use natural treatments called CAM. Some information is available about these treatments, but not all of them have been studied well. Some types of CAM that have been used for allergies include Chinese medicine, acupuncture, homeopathy, and herbal remedies. Studies have shown that acupuncture helps a little bit with allergies. Acupuncture takes a lot of time. (Jeon SR *et al.*,2022).

Allergen immunotherapy:

Allergy shots involve giving the patient small amounts of the thing they are allergic to until they become tolerant to it. Allergen IT works well for people with seasonal allergies caused by pollen from plants like trees, grass, and ragweed. (Moote W *et al.* 2018).

This medicine works well in curing allergies caused by mites, alternaria, cockroaches, and pet hair and skin. AllergenIT helps reduce allergy symptoms by avoiding allergens and taking medicine. It should be used for patients who don't do well with medicine treatment. This way of treating someone can cause severe allergic reactions. Only doctors who know how to deal with allergies should give this treatment. (Kalayci O *et al.*,2022).

There is proof that a treatment called allergen-specific immunotherapy helps patients with allergies called AR. This treatment can last for 1-3 years and has good effects that stay even after the treatment stops. In some places, doctors who treat allergies believe that after getting treated properly for 5 years, patients should stop having the treatment called IT. Allergy shots (IT) can help prevent asthma in kids with allergies. These shots are given every week for several months and then less often for a few years. After a while, some patients feel better for a long time and maybe they can stop taking medicine. You can also get supplements each year before the season starts. (Durham SR *et al.* 2023).

Types of immunotherapies:

- ***Subcutaneous Immunotherapy:***

Immunotherapy is a treatment for allergies. It involves giving the patient small amounts of the thing they are allergic to, to help their immune system get used to it and reduce symptoms. AIT is a treatment that can help your immune system become more tolerant to allergies. It can also provide a lasting improvement to your allergy symptoms. This treatment can stop someone who already has allergies from getting more allergies, prevent allergies from turning into asthma, and make their life better by needing less medicine. (Alvaro-Lozano M *et al.*, 2020).

The most well-known way to treat this condition is called Subcutaneous Immunotherapy (SCIT). This article will discuss how well and when allergies that come from breathing (like those from pollen, dust, or animal fur) can be treated with shots. "When studying allergies, venoms or food allergies are looked at separately from SCIT. " Other topics like how to make allergy treatments, quick allergy treatments, and how allergy treatments work are also talked about somewhere else. (Alamri R A *et al.* 2022).

- ***Sublingual Immunotherapy:***

Sublingual IT is when a patient takes drops or tablets under their tongue to help them become less sensitive to allergens. This way is easier and safer than getting injections, and patients can do it at home. SLIT is like SCIT for people who have allergies and do not respond well to regular medicine or do not want to use it. (Ji Z *et al.* 2023).

SLIT can cause some common reactions like having an itchy mouth, a sore throat, and itchy ears. These signs usually improve after taking medicine for a week. Some doctors may give a shot to stop a bad allergic reaction at home even though it is unlikely to happen. Taking medicine under the tongue is safer than having an injection for allergies because it is less likely to cause severe allergic reactions. (Cardona V *et al.* 2020).

Like SCIT, SLIT should not be used with patients who have severe, unstable, or poorly controlled asthma. It's best to not use this in patients taking beta-blocker medicine and those with mouth problems like sores. (Moote W *et al.* 2018).

- ***Other types of IT:***

- Intralymphatic immunotherapy under trial.
- Intranasal immunotherapy under trial.



Biological allergy immunotherapy:

Omalizumab is a medicine that helps with allergies and breathing problems. It works well for allergies that come during certain seasons and asthma. However, it is not allowed yet to be used for treating allergies. (Pfaar O *et al.* 2021).



Surgical treatment:

If medicines don't work, some people with runny nose, polyps, or sinus problems can get better with a surgery called surgical therapy. Most surgeries can be done without putting the patient to sleep in a clinic or doctor's office. (Mimari C *et al.* 2023).

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