Review Article

Medical Treatment of Rhinitis in Pregnant Woman

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Abstract

Rhinitis is a global problem and is described as the presence of at least one of the symptoms, such as sneezing, rhinorrhea, nasal itching, and nasal obstruction. Gestational rhinitis is a common clinical condition found during pregnancy. Medical management options for pregnant women with rhinitis need careful consideration. It is often challenging to differentiate the causes of rhinitis as it often influences the treatment. Conservative treatment is an important option for patients with pregnancy-induced rhinitis and preexisting allergic or nonallergic rhinitis. Awareness about pregnancy-induced rhinitis and its resolve after pregnancy can provide some relief. Few options, such as exercises, nasal douching or lavage, positioning, and nasal valve dilators, are safe in pregnancy with rhinitis due to any etiology. Intranasal corticosteroids have often safe with budesonide. Oral corticosteroids can be used in pregnant women with moderate-to-severe disease and should be avoided in the first trimester. Second-generation antihistamines, such as loratadine and cetirizine, are the most well-studied drugs, and are often considered safe. The role of immunotherapy requires further research to establish its effectiveness. Hence, the treatment of rhinitis during pregnancy is considered a complex task. This review article aims to discuss the current medical treatment options for rhinitis during pregnancy.

Keywords: Antihistamines, pregnancy, pregnancy-induced rhinitis, rhinitis, topical nasal corticosteroids

Introduction

Rhinitis is a common clinical entity associated with itching, sneezing, nasal congestion, and nasal discharge.[1] Rhinitis is classified into two types such as allergic and nonallergic rhinitis. The most common etiology of allergic rhinitis includes house dust mites, pollens, and animal allergens.[2] There is an alteration of the normal physiology of the female during the pregnancy period. Approximately one-third of the female with preexisting allergic rhinitis can manifest with worsening of their symptoms during pregnancy.[3] Rhinitis during pregnancy results in maternal morbidity and mortality. Pregnancy-induced rhinitis is a distinct clinical entity that can occur at any time during pregnancy, persists for more than 6 weeks with no allergic etiology, and self-resolves within 2 weeks of delivery.[4] Although rhinitis is not much life-threatening to the mother or baby, it is vital for optimizing treatment as there can be a profound effect on the quality of life of the patient.[5] Rhinitis during pregnancy has gained importance in recent years, not only due to the discovery of association with maternal obstructive sleep apnea (OSA) syndrome and possible unfavorable outcomes to the fetus but also due to the important impact on the pregnant woman's quality of life.[6] The objective of this review article is to discuss the current medical treatment options for rhinitis during pregnancy.

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Methods of Literature Search

Multiple systematic methods were used to find current research publications on the medical treatment of rhinitis in pregnant woman. We started by searching the Scopus, PubMed, MEDLINE, and Google Scholar databases online. A search strategy using Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines was developed. This search strategy recognized the abstracts of published articles, while other research articles were discovered manually from the citations. Randomized controlled studies, observational studies, comparative studies, case series, and case reports were evaluated for eligibility. There were a total number of articles, 78 (26 case reports, 20 cases series, 32 original articles) [Figure 1]. This paper focuses only on the details of the medical treatment of rhinitis in pregnant woman. This review article describes the epidemiology, clinical manifestations,

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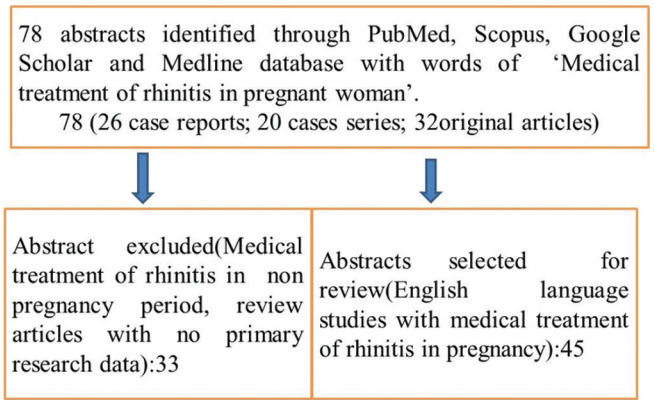

Figure 1: Flow chart showing methods of literature search

and medical treatment of rhinitis in pregnant woman anatomy. This analysis provides a better understanding of the medical treatment of rhinitis in the pregnant woman. It will also catalyze further study of the medical treatment of rhinitis in pregnant women and the development of newer treatment options.

Epidemiology

Rhinitis is a common clinical condition in the world.[7] Approximately 20%–40% of the women present rhinitis during childhood or adolescent time, and 10%–30% of these women present symptoms worsening during pregnancy time.[8] The incidence and prevalence of rhinitis in pregnancy are usually inaccurate. This is due to different definitions and cross-over between patients with preexisting rhinitis and pregnancy-induced rhinitis. One recent study showed 32% of pregnant women presented with pregnancy-induced rhinitis.[9] Another study reported around 20% of women presented with pregnancy-induced rhinitis during all trimesters.[4]

Clinical Manifestations

The primary symptoms presented during pregnancy are similar to rhinitis of other causes.[10] Gestational rhinitis is characterized by nasal obstruction in the past 6 or more weeks of gestation, with complete resolution within 2 weeks after delivery.[11] Unlike gestational rhinitis, in which nasal obstruction is the main symptom, patients with allergic rhinitis during pregnancy have rhinorrhea, pruritis, sneezing, as well as nasal congestion.[12] The nasal obstruction by rhinitis, either by gestational/pregnancy induced or not, may be associated with a worsening of the pregnant woman's quality of sleep, in addition to snoring and OSA. However, the latter may be the result of a combination of factors, involving weight gain during pregnancy.[13] Mouth breathing caused by nasal blockage worsens during gestational rhinitis, which may result in a decrease in inhalation of nitric oxide produced mainly in maxillary sinuses to the lung, which reduces vascular resistance, in addition, to improving the local oxygen.[6] The reduction in pulmonary nitric oxide inhalation can have a harmful effect on the effect, leading to maternal hypertension, intrauterine growth retardation, preeclampsia, and lower Apgar scores of the newborn.[6] Nasal obstruction also impairs the quality of sleep and leads to abuse of topical nasal decongestants, leading to associated drug-induced rhinitis, which does not resolve after delivery.[14] However, there is inadequate data to establish an association between rhinitis and an unfavorable outcome in pregnancy.[6]

Conservative Treatment

Avoidance

Avoidance of environmental trigger factors like strong odors (soap, perfumes, paint, etc.) and air pollutants (fumes, smoke, tobacco smoke) that irritants to the respiratory tract are recommended in those who worsen their rhinitis symptoms.[15]

Conservative care

Pregnancy-induced rhinitis is usually resolved after delivery. Hence, patient education and counseling are an important part of the management during pregnancy.[16] The knowledge about pregnancy-induced rhinitis as a self-limiting clinical condition among pregnant women will offer reassurance and support to the women presenting the nasal symptoms or rhinitis.[17] Physicalexerciseshelp the patients with rhinitis by decreasing nasal congestion. Aerobic exercises for 8 weeks of 30 min sessions, three times a week improve peak nasal inspiratory flow and nasal blood flow that reduce rhinitis.[18] Despite this, it is well reported that aerobic exercise reduces nasal resistance through a systemic increase in sympathetic nervous activity, and this effect is maintained in patients with allergic rhinitis, bronchial asthma, and rhinitis.[19] Lying supine can worsen the nasal flow. This is largely explained through an increase in central venous pressure and moving from an upright to a supine position, and a reflex change in nasal vasomotor activity when lying lateral recumbent.[20] Lying in a 30°–45° angle head-up position can improve the air passage through the nose and in the case of a lateral recumbent position, it can enhance the airflow in the nasal cavity in the nondependent nostril.[21] Certain food can influence rhinitis symptoms. An animal study showed that dietary ginger suppressed mast cell infiltration in the nasal mucosa through reduced cytokine production, resulting in less allergic rhinitis symptoms such as sneezing and itching in the nose.[22] Increased consumption of Vitamin C reduces the symptoms of allergic rhinitis.[23] Intake of turmeric reduces allergic rhinitis by anti-inflammatory and anti-allergic effects.[24] Food containing dairy, corn, and wheat may worsen rhinitis symptoms. Oily fish and foods rich in n-3-fatty acids reduce the risk of allergic rhinitis.[24] Saline nasal irrigation reduces the symptoms of rhinitis, such as rhinorrhea, nasal blockage, itching, and sneezing.[25,26] Nasal valve dilators have also been shown to enhance subjective nasal breathing and are safe to use during pregnancy.[27]

Medical Treatment

Intranasal steroids

There are several topical corticosteroid preparations available for patients with rhinitis. Currently, many modern nasal

topical steroids are considered safe during pregnancy.[2] These intranasal steroids include recommended doses of mometasone, budesonide, and fluticasone. The most widely studied intranasal steroid is budesonide which is classified with recommended doses of 50 μg to each nostril up to twice a day.[2] It is not known whether higher doses have the same safety profile or not.[28] The newer preparations of topical steroids have negligible systemic absorption and no evidence of impact on the fetus. A placebo-controlled randomized study on a woman with pregnancy-induced rhinitis revealed no benefit in fluticasone in comparison to placebo in terms of daily symptom scores, acoustic rhinometry, and nasal peak expiratory rate before and after treatment.[29] However, this study is confined to only 53 pregnant females where comparison of placebo was done with just one intranasal corticosteroid preparation (fluticasone).

Oral corticosteroids

Oral corticosteroids are usually used for moderate-to-severe rhinitis with asthma. These medications are usually safe after the first trimester. There is evidence that oral steroids during pregnancy are associated with an increased risk of cleft lip, with or without cleft palate, in fetuses during the first trimester.[30] There is a chance of poor pregnancy-related outcomes with oral steroids, such as preeclampsia, premature delivery, and low birth weight.[31] Despite these, some systemic steroids are known to cause certain side effects like hyperglycemia and worsening diabetic control, which may contribute to risks to both fetus and the mother. Hence, there is a risk-benefit analysis on a patient-by-patient basis.

Nasal decongestants

Topical decongestants play a limited role in the treatment of rhinitis in nonpregnant patients due to their rebound effect of worsening symptoms after prolonged use.[32] These medications can have a beneficial effect on nasal blockage when used for short term (7–10 days). These affect the sympathetic nerves vial action on adrenergic receptors, thereby causing vasoconstriction and decreasing nasal congestion.[33] Oral phenylpropanolamine may be helpful during pregnancy when used as 3 days course and should be avoided in the third trimester. A randomized controlled study comparing 50 mg phenylpropanolamine twice daily to placebo showed the decongestant effect in terms of subjective symptom scores. However, this study evaluated 38 females, and there was no difference found between groups on nasal mucosal surface evaluation with rhinostereometry.[34]

Antihistamines

Antihistamines are usually used for allergic rhinitis because of their potency as H1 receptor blockers. A study showed no increase in teratogenic risks in humans with the use of antihistamines in pregnancy.[35] First-generation antihistamines are usually avoided in patients due to their poor selectivity and side effects such as drowsiness. Their use also increases the chance of dementia by their anticholinergic properties.[36] Second-generation oral antihistamines are often preferred medications for allergic rhinitis. Cetirizine and loratadine have demonstrated a good safety profile during pregnancy.[37] Cetirizine also alleviates nasal symptoms and vomiting in pregnancy.[38] Studies showed low birth weights in animal models with fexofenadine and desloratadine.[39]

Sodium cromoglycate

It is a mast cell stabilizer and prevents immunoglobulin E (IgE)-mediated degranulation. It is effective in the treatment of allergic rhinitis. There are no teratogenic effects of this drug in humans or animals.[40] This is thought to be due to its poor systemic absorption. Intranasal sodium cromoglycate is often recommended as the first line of treatment in pregnancy.[40]

Anticholinergics

The important anticholinergic used in patients of allergic rhinitis includes intranasal ipratropium. It acts as a muscarine receptor antagonist in the seromucinous glands which controls the rhinorrhea.[41] There are no teratogenicity effects in animals with anticholinergics, although there are limited data in humans.[39] Hence, 0.03% preparations of ipratropium bromide nasal spray can be used in a pregnant woman if the potential benefit outweighs the risk.[39]

Immunotherapy

Allergen immunotherapy is recently used in nonpregnant women with allergic rhinitis. This is usually delivered through subcutaneous or sublingual methods and is reversed in patients with severe IgE-mediated rhinitis refractory to treatment. It is helpful in terms of efficacy and disease-modifying effects.[42] However, it is costly and not always accessible. Immunotherapy should not be initiated during pregnancy. It is thought that allergen immunotherapy is helpful in pregnancy with allergic rhinitis and may be beneficial to the unborn child. Two studies documented a potential preventive effect of allergic sensitization, with one demonstrating a lack of allergen-specific IgE in paired cord blood and the other revealing a decrease in skin reactivity to grass allergies in the baby.[43,44] More studies are needed to see the true effect of this phenomenon. Several retrospectives studied have shown no increased chance of prematurity, fetal abnormality, or neonatal death.[45] Finally, pregnancy is not considered a contraindication for continuing allergen-specific immunotherapy.

Conclusion

Rhinitis is an important clinical entity observed during pregnancy and severely affects the quality of life. Pregnancy-induced rhinitis is often misclassified and underdiagnosed. There is currently no cure or optimum symptomatic treatment. In pregnancy, the safety profile of drugs is the primary concern for the treatment of rhinitis. Advice and conservative treatment provide the mainstay of the clinical management of rhinitis in a pregnant woman. None of the currently available medical options offer an ideal solution. Any potential benefit gained should be balanced against the risk to the fetus. Both the otorhinolaryngologist and the obstetrician should be alert for an early diagnosis and adequate treatment, considering the

safety profile and current evidence of available measures and medications.

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Conflicts of interest

There are no conflicts of interest.

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