

## MINIREVIEW

# PREGNANCY RHINITIS

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### ABSTRACT

Pregnancy rhinitis is defined as a nasal congestion in the last six or more weeks of pregnancy, without other signs of respiratory tract infection and without known allergic cause, disappearing completely within two weeks after delivery. Some authors say that there is clinical proof of a correlation between pregnancy rhinitis and preeclampsia, preeclampsia being the most frequent cause of maternal and fetal morbidity and mortality. The relationship between these two pathologies lies in snoring. Because of the pregnancy and its limitations for treatment options, most studies talk about the importance of educational measures as first choice of managing the symptoms of pregnancy rhinitis.

**Key words:** nasal obstruction, pregnancy, rhinitis.

### INTRODUCTION

Pregnancy rhinitis and upper respiratory tract congestion in pregnancy started to be studied in the early 2-nd century with the work of McKenzie but its etiology and pathophysiology are still unknown, the theory that is most accepted being the estrogen theory<sup>1</sup>.

### RÉSUMÉ

#### La rhinite de gestation

La rhinite de grossesse est définie comme « la congestion nasale au cours des six dernières semaines ou plus de la grossesse sans autres signes d'infection des voies respiratoires et sans cause allergique connue, disparaissant complètement dans les deux semaines après l'accouchement. Certains auteurs affirment qu'il existe une preuve clinique d'une corrélation entre la rhinite de grossesse et la prééclampsie, la prééclampsie étant la cause la plus fréquente de morbidité et de mortalité maternelles et fœtales. La relation entre ces deux pathologies réside dans le ronflement. En raison de la grossesse et des limites qu'elle pose pour les options de traitement, la plupart des études parlent de l'importance des mesures éducatives comme premier choix de gestion des symptômes de la rhinite de grossesse.

**Mots-clés:** obstruction nasale, grossesse, rhinite.

This theory is based on the biopsies obtained from pregnant woman and those obtained from woman who took oral contraceptives. Studies have shown that the nasal respiratory epithelium is estrogen targeting and that leads to the enlargement of the vascular bed and to an increase in the glands activity, leading to the swallowing of the mucosa that

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is specific for pregnancy, called pregnancy rhinitis. Sometimes, these changes of the nasal mucosa can be seen also in the larynx mucosa, leading to changes in voice<sup>2</sup>.

Studies show that, during the postnatal period, the nasal congestion is much diminished, even if breastfeeding is associated and this increases with pregnancy (comparing the first three months of pregnancy to the last month of pregnancy). In the study of Demirci, the rate of nasal congestion was 27 % in the 12<sup>th</sup> week and 42% in the 36<sup>th</sup> week of pregnancy, showing that the nasal congestion is increasing significantly in the third trimester<sup>3</sup>. The same study shows that the nasal values were decreased as the pregnancy progressed.

Ellegard and Karlsson defined pregnancy rhinitis as „nasal congestion in the last six or more weeks of pregnancy, without other signs of respiratory tract infection and with no known allergic cause, disappearing completely within two weeks after delivery“<sup>4</sup>. Some authors (Karatas) say that there is clinical proof of a correlation between pregnancy rhinitis and preeclampsia, preeclampsia being the most frequent cause of maternal and fetal morbidity and mortality<sup>5</sup>. The relationship between these two pathologies lies in snoring. Although snoring can be a common symptom during pregnancy, it can also be associated with maternal hypertension, intrauterine growth retard and low Apgar score.

It seems that because most of the inspired nitric oxide (NO) is produced in the maxillary sinus and it increases pulmonary oxygenation, by reducing pulmonary vascular residence, mouth breathing reduces NO inhalation and so it affects oxygenation also in the fetus<sup>5,6</sup>.

### History of pregnancy rhinitis

In the late 19<sup>th</sup> century, several articles started to suggest a relationship between the female genital organs and the nose.

In 1884, Mac Kenzie published the first study suggesting that menstrual or sexual stimuli lead to worsening of nasal symptoms<sup>6</sup>. In 1892, Endriss describes the aggravation of the epistaxis and nasal diseases during menstrual period and pregnancy<sup>7</sup>.

In 1943, Mohun reported a correlation between pregnancy and vasomotor rhinitis<sup>8</sup>. He also noticed the correlation between the worsening of symptoms during the last trimester of pregnancy and the disappearance very fast after giving birth. He also concluded with the correlation between the estrogen status and pregnancy leading to the development of vasomotor rhinitis.

## METHODS OF INVESTIGATING THE PREGNANCY RHINITIS

The diagnosis of gestational rhinitis is clinical, and usually the patient accuses worsening of nasal obstruction syndrome. It is important to be cautious regarding the nasal obstruction criteria in pregnant woman, considering only the ones that have a significant impact on the quality of life.

**Complete head and neck evaluations during the first and the third trimester of pregnancy** – nasal exam performed with a nasal speculum and a 0 or 30 degrees endoscope and noting of the presence of the hypertrophy for both lower and middle concha. This exam should be performed before and after nasal decongestants<sup>9</sup>.

**Anterior rhino manometry** – also before and after nasal decongestants. After the mask closing both mouth and nose is placed, the pressure probe should be put in one nostril and during the probe we should be careful not to make any pressure on the nostril.

All the tests should be performed after delivery, to ensure that the vascular congestion has disappeared entirely<sup>10</sup>.

## TREATMENT

Because of the pregnancy and its limitations for treatment options, most studies talk about the importance of educational measures as first choice of managing the symptoms of pregnancy rhinitis. When administered in the first trimester of pregnancy, the treatment with decongestants raises the developing of vasomotor rhinitis, that persists after birth<sup>11</sup>.

The educational measures consist in physical exercise, which has a well-established effect on nasal obstruction impairment, sleeping with the head of the bed at 30-45 degrees and additionally nasal irrigation with saline solution provides good temporary symptom relief<sup>12</sup>.

The nasal decongestants can be divided into: short acting – phenylephrine, intermediate – naphazoline and long-acting oxymetazoline and xylometazoline, but all these drugs are considered group C by the Food and Drug Administration and are not really safe to use during pregnancy. A recent study on 12,734 cases conducted in USA and Canada suggested an association between the use of nasal decongestants in the first trimester and hypertrophic pyloric stenosis and renal system abnormalities in newborns<sup>13</sup>.

If the use of decongestants is absolutely necessary, it should be used for no more than 5 days.

The use of topical steroids is proved in allergic rhinitis, but not very well demonstrated on pregnancy

rhinitis. Its classification is class B by the FDA administration, with questionable effects<sup>14</sup>.

Antihistamines are class B, but also mostly efficient in allergic rhinitis not being proved as efficient in gestational rhinitis.

Surgery – the volumetric reduction of the inferior turbinate has a limited role in rhinitis during pregnancy and it is reserved for severe cases, if obstructive sleep apnea syndrome (OSAS) is installed and continuous positive airway pressure (CPAP) or other therapeutic methods are not efficient<sup>15</sup>.

## CONCLUSIONS

As pregnancy advances, nasal congestion arises due to the hormonal changes associated with pregnancy. This nasal congestion leads to difficulties in breathing and a modified speech resonance. The nasal complaints are more pronounced during the third trimester and are decreased after delivery, even when breastfeeding. Pregnancy can lead to hypo nasal voice, this changing in voice resonance being very important for the vocal professionals. Pregnancy rhinitis is a common condition during pregnancy, but it can be very well tolerated with proper educational measures and adequate treatment.

## Compliance with Ethics Requirements:

„The authors declare no conflict of interest regarding this article“

„The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law.“

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