

Rhinological conditions in pregnancy. A clinical prospective study

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Abstract

The study aims at achieving some diagnostic and therapeutic protocols for the rhinological conditions in pregnancy. The prospective study was conducted over a period of five years (January 2005 - May 2010) on pregnant women registered at "Prof. Dr. Panait Sârbu" Clinical Hospital of Obstetrics and Gynecology, Bucharest. Out of the 24,518 births, addressability to the ENT Department from Elias Clinical Emergency Hospital was as follows: 311 with conditions of moderate or high gravity, out of which 242 were rhinological ones. Diagnostic and therapeutic protocols were established for the 4 rhinological conditions common in pregnancy (rhinitis, rhinosinusitis, allergic rhinitis, and epistaxis), according to the result of some randomized studies from abroad. The rhinological conditions have the highest frequency in pregnancy. The protocols applied have some characteristics stemming from the association with pregnancy.

Keywords: rhinological conditions, pregnancy, diagnostic, therapeutic protocols

Introduction

The pregnant woman's nasal mucosa is histologically different from the non-pregnant status. The differences result from the direct and indirect effects of pregnancy on the pituitary gland⁽¹⁾. This was first noticed by Henderson, in 1956, when he stated that the nasal epithelium suffers a hormonal influence in pregnancy that is similar to the one on the uterine cervix surface.

The information available on pregnancy rhinitis, as well as the diagnostic protocol applied, derive from three major studies and from sporadic case reports or small case series: Collaborative Perinatal Project - 50,282 women⁽²⁾, Group Health Co-operative - 6,837 women⁽³⁾, Division of Epidemiology and Surveillance, Center for Drugs and Biologics, U.S. Food and Drug Administration - 229,101 women⁽⁴⁾.

A cohort study on approximately 1,500 pregnant women concluded that at least one in five women experiences one or more instances of nasal bleeding during pregnancy, as compared to a rate of 6% in the general population⁽⁵⁾. Women with epistaxis during pregnancy presented a higher risk of postpartum hemorrhage compared to women who developed no epistaxis during pregnancy. (10.7% vs. 6.7%; p=0.2). The study concluded that epistaxis, a common condition during pregnancy, can be associated to a higher risk of postpartum hemorrhage⁽⁶⁾.

The studies related to rhinosinusitis in pregnancy have shown that the frequency rises in the second trimester⁽⁷⁾, being six times as high as normally⁽³⁾.

There are limited studies on allergic rhinitis in pregnancy, there are sporadic case reports and small case series, and the results are hypothetical^(2,3,4).

Methods

The study spanned five years (January 2005 - May 2010). All the cases presented in the study are pregnant women registered at 'Prof. Dr. Panait Sârbu' Clinical Hospital of Obstetrics and Gynecology.

Out of the 24,518 births, addressability to the ENT Department from 'Elias' University Emergency Hospital was as follows: 311 with conditions of moderate or high gravity, out of which 242 were rhinological ones.

For each case, monitoring medical records were kept to register medical history, clinical information on gestational age and symptomatology, the results of paraclinical investigations, medication administered, as well as the evolution of the disease during pregnancy and in postpartum.

After the quantitative and prospective accumulation of information, computerized processing followed, and the results were studied, correlated and statistically processed, while the research data were analyzed and compared to the ones in the literature.

The otorhinolaryngological manifestations in pregnancy were observed. The highest prevalence was found among the rhinological conditions: pregnancy rhinitis, epistaxis, allergic rhinitis, rhinosinusitis.

Results

During this time, the pregnant patients' addressability to the ENT Department of 'Elias' Clinical Emergency Hospital, Bucharest was as follows: 242 rhinological conditions with moderate and severe symptomatology (Table 1).

We must note that the number of pregnant women with ENT conditions may have been higher, but only the ones whose symptoms were annoying enough not to allow for a delay in treatment until after delivery addressed our department. Furthermore, some of the patients may have addressed their GP, who did not find it necessary to refer the patients to the ENT department.

Out of the 120 cases of pregnancy rhinitis who presented to the ENT department, 62 were found during the first pregnancy trimester, 30 during the second and 28 during the third.

Most of the cases, that is 80, were of nasal congestion, which can become annoying and can prevent the pregnant woman

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Table 1 Moderate and severe rhinological conditions during pregnancy

Moderate and severe conditions during pregnancy	Number of cases	Percentage out of the total number of births during 2005-2010
1. Pregnancy rhinitis	120	0.489%
2. Rhinosinusitis	25	0.102%
3. Allergic Rhinitis	17	0.069%
4. Epistaxis	80	0.326%
TOTAL	242	0.987%

from resting, as it produces sleep disruption. In 15 cases, nasal congestion was accompanied by watery rhinorrhea, and in 25 cases pregnancy rhinitis associated with rhinosinusitis through problems in the sinus drainage (Figure 1).

Only one case in the 120 presented total nasal obstruction. The patient presented at A& E complaining of anxiety and breathlessness. She was 28 weeks pregnant and had pronounced leg edema. She was administered an ampoule of Dexamethasone IM, intranasal vasoconstrictive swabs were applied, as well as Nasonex on the pituitary. In addition, the patient underwent a treatment with Nasonex and diuretics as an outpatient (following the obstetrician's advice).

All patients, irrespective of the gestational age, followed a hygienic and dietetic regimen (liquids consumption, increasing the room humidity, easy exercise, the head on a

high pillow during night, etc.), especially the ones in the first pregnancy trimester.

The cases that presented with serious obstruction and sleep disruption required Oxymetazoline (Afrin) and Mometasone furoate monohydrate, Nasal Spray (Nasonex). Oxymetazoline was not administered in the first trimester, unlike Nasonex, which was prescribed irrespective of gestational age and over longer periods of time, sometimes up to a month in severe cases.

Oxymetazoline drops were administered 2 each nostril every 12 hours, not more than four days, after which, if symptoms persisted, Mometasone furoate (Nasonex) was given, one puff each nostril b.i.d.

The mother's blood pressure was monitored during the treatment with Oxymetazoline. The latter was not adminis-

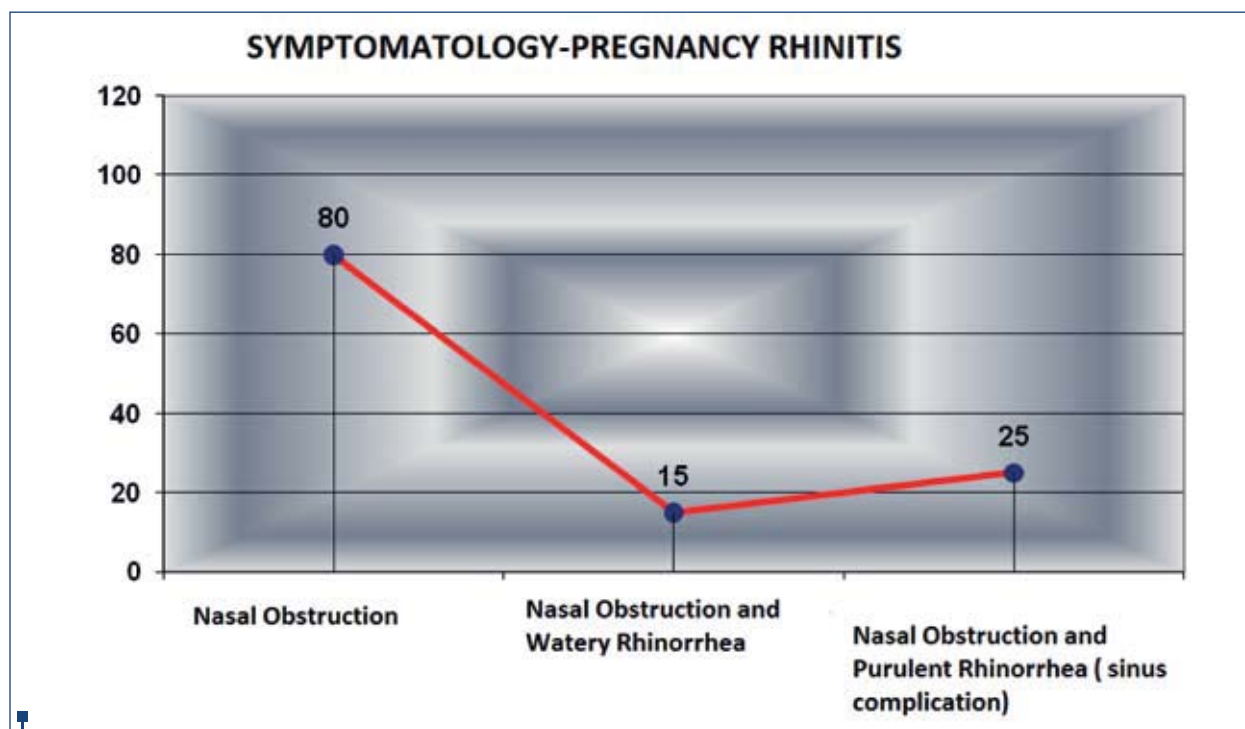


Figure 1. Symptomatology in pregnancy rhinitis (120 cases)

tered at patients known with hypertension during pregnancy. For these, the treatment with Nasonex was started from the very beginning.

Out of the 120 cases of pregnancy rhinitis, 25 complicated with rhinosinusitis as a result of deficient drainage, and 40 with tubular dysfunction.

The diagnosis of pregnancy rhinosinusitis was established in all the 25 cases following the ENT examination, nasopharyngeal fibroscopy and a history of nasal obstruction that had appeared during pregnancy. No sinus- X-ray was performed. An MRI was necessary in one case, as the diagnosis could not be established on examination (a case of frontal sinusitis).

In five cases, a dysfunction of the Eustachian tube was found.

According to the type of sinusitis found, we had: 1 case - frontal, 2 cases - maxillary unilateral, 15 cases - maxillary bilateral, 7 cases of pansinusitis (Figure 2).

We instituted treatment with Amoxicillin 500 mg every 8 hours, Paracetamol 2 tabs/day, Mucolytic Herbs Syrups (Plantain Syrup, Stodal etc.), Algocalmin for 7 days. Pads with decongestive substances were applied daily (Oxymetazoline) with symptoms remitted.

Out of the 25 cases of rhinosinusitis, the great majority responded to treatment with Amoxicillin or Amoxicillin and clavulanate potassium (Augmentin).

We had three cases, 2 in the third trimester and 1 in the second trimester, which did not respond to this first intention treatment and Cefuroxime axetil (Zinnat) was administered for 5 days.

All cases benefitted from daily local treatment which consisted in nasal toilet to clean the passages with vasoconstrictive pads and nasal irrigation using physiological saline, after which a puff of Mometasone furoate was applied.

Symptomatic treatment consisted in Paracetamol 1-2 tabs/day not more than 5 days, as well as mucolytic herbs syrups and Algocalmin (Metamizole sodium) prn.

We had 16 cases of allergic rhinitis under observation, out of which 5 were within the rhino-sinobronchial syn-

drome. During pregnancy, the 5 cases diagnosed with rhino-sinobronchial syndrome before pregnancy and under medication with bronchodilators and intranasal topical cortisone evolved normally, with no special incidents during pregnancy.

Another 8 cases, diagnosed with allergic rhinitis before pregnancy and who followed treatment only after the appearance of symptoms during pregnancy, presented frequent episodes of rhinorrhea, nasal obstruction, nasal and ocular pruritus, sneezing.

Three patients who had not manifested the symptomatology specific to allergic rhinitis before pregnancy developed the first episodes of sneezing, watery rhinorrhea and nasal obstruction during pregnancy. The symptoms remitted in postpartum.

All the cases received treatment with intranasal topical cortisone, Mometasone furoate 1 puff/ t.i.d. until the relief of symptoms. No corticoids were necessary, neither p.o., nor I.V., and no other adjuvant medication.

Most of the 76 cases of epistaxis in pregnancy that we had under observation were mild and raised no special therapeutic problems (Table 2). In all these cases hemorrhages were minor, recurrent, originating in Little's area and stopped spontaneously, with no intervention from our part. In most cases Tannin ointment was applied locally on Little's area. These patients also presented spontaneous gum bleeding or during tooth brushing.

We had 2 cases of medium epistaxis. In these cases we detected a pediculated tumor mass at the level of the nasal fossa, which was excised using bipolar cautery, under local anesthesia. Thus, the bleeding source was removed, and no nasal packing was necessary. Both patients were in the third trimester of pregnancy. Anatomic-pathologic examination revealed cell proliferation made up of vascular structures of small dimensions in a lax stroma, partially covered in squamous epithelium with wide- spread ulcerations and fibrinonecrotic exudate. The histopathological aspect was of capillary hemangioma.

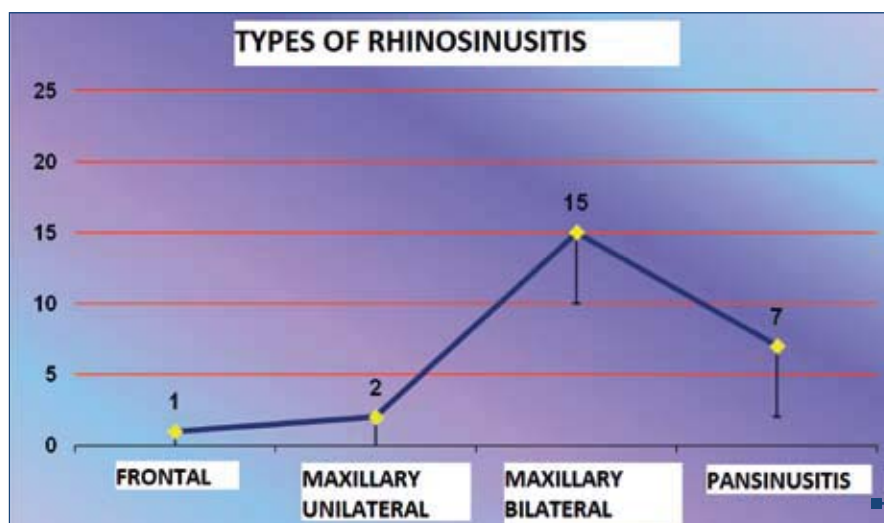


Figure 2. Types and incidence of rhinosinusitis

Table 2 Classification of epistaxis according to gravity

Epistaxis after pregnancy	Cases	Treatment
Massive	2	Nose packing was necessary
Medium	2	No nose packing was necessary
Mild	76	Local treatment
	80	

Two cases were diagnosed with massive epistaxis: an ethmoid sinus tumor at 34 weeks of pregnancy⁽⁸⁾ and a spontaneous epistaxis at 24 weeks of pregnancy.

Discussion

During the time of the study we recorded 11 ENT conditions more frequently associated to pregnancy. The rhinological disorders were the most common, the top two being pregnancy rhinitis⁽¹⁾ and epistaxis⁽⁵⁾.

We specify that the diagnostic and therapeutic protocols we applied were in accordance with the result of randomized studies from abroad.

Pregnancy rhinitis, the most common condition during pregnancy, was found in 62 out of 120 cases during the first trimester. The diagnosis was established following clinical examination. As regards the treatment, prophylaxis was the priority. In the medium and severe cases, Oxymetazoline was prescribed in therapeutic doses and Mometasone furoate spray (the latter with less efficient results but with almost non-existent secondary effects on the fetus). This treatment was not applied in the first trimester, except for several cases when Mometasone furoate was administered, without any adverse effects on the fetus^(2,3,4).

The complications of pregnancy rhinitis are rhinosinusitis and tubular dysfunction sometimes associated with serous otitis media.

The 25 cases of rhinosinusitis were diagnosed following medical history, nasopharyngeal fibroscopy and MRI of facial sinuses in some cases. In no case was an X-ray of facial sinuses performed, even if the literature showed that the amount of irradiation cannot trigger teratogenic effects on the fetus. 22 cases benefitted from treatment with Amoxicillin or Amoxicillin and clavulanate potassium with good effects after 5 days. In 3 cases this treatment failed and the treatment was changed to Cefuroxime axetil (Zinnat), also for 5 days. To antibiotics, we associated a treatment to

eliminate nasal obstruction by nasal irrigation using physiological saline, followed by applications of Oxymetazoline and Mometasone furoate. Symptomatic treatment consisted in Paracetamol 1-2 tabs/day, mucolytic herbs syrups and Algocalmin (Metamizole sodium) prn. The treatment with Cefuroxime Axetil was administered only in the second and third trimester of pregnancy⁽¹⁾.

All the 16 cases of allergic rhinitis under observation were treated with Mometasone furoate as a first-line treatment, with good results. Diagnosis was established on history and nasopharyngeal fibroscopy⁽⁹⁾.

Epistaxis, the second most common pathology in pregnancy, was encountered in a mild form in 76 cases. They originated in Little's area, stopped spontaneously, were recurrent and were only treated locally with Tannin ointment. The other 4 cases of medium and massive epistaxis benefitted from differential treatment, according to the associated pathology.

We must remember that pregnant women with epistaxis during pregnancy can manifest hemorrhages in postpartum as well, therefore the obstetrician should be warned about this possibility.

Conclusions

1. Pregnancy rhinitis is the most common pathology associated to pregnancy, most frequently encountered during the first trimester.
2. Pregnancy rhinosinusitis is considered to be a complication of the severe form of pregnancy rhinitis.
3. Allergic rhinitis will be treated only with topical cortisone (which is considered a first-line treatment by the ARIA guidelines).
4. Epistaxis appeared in pregnancy is a common condition, but it is generally not severe and does not raise any special therapeutic problems. Nevertheless, we must draw attention to it, as it may be associated to postpartum hemorrhage. ■

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