

Research Article

Otorhinolaryngological complaints in pregnancy: a prospective study in a tertiary care centre

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ABSTRACT

Background: The noteworthy changes occur throughout the female body during pregnancy, due to hormonal processes. Mostly they are self-limiting and do not harm the expectant mother or fetus, but some become pathological and require early medical intervention to limit the damage. The objective was to recognize and compartmentalize such complaints; and additionally gaining figures reflecting the frequency of such complaints.

Methods: This study design consists of pregnant women coming with various ENT complaints to outpatient department.

Results: ENT-related symptoms are common during pregnancy.

Conclusions: Practitioners should have general idea of the etiology, clinical severity and most favorable treatment of these conditions.

Keywords: Pregnancy, ENT, Otorhinolaryngology, Manifestation, Trimester

INTRODUCTION

Otorhinolaryngology related symptoms are common during pregnancy due to underlying physiological and hormonal (estrogen and progesterone levels) changes.¹ When the sperm fertilizes ovum, female hormonal cycle begins to change. The embryo produces Human Chorionic Gonadotropin (hCG), which stimulates the continual rise in progesterone levels that usually fall midway through the luteal phase following ovulation. hCG levels usually begin to decline following their peak at the end of the first trimester, but progesterone levels, alongside estrogen and human placental lactogen, continue to rise throughout gestation.² These hormones are important for continued growth of the fetus, but the effects of these hormones usually extend beyond the uterus and alter the physiological activity of the entire

body. Most of these physiological and hormonal processes produce no harmful effects on mother and fetus, but some can become pathological and can cause uneasiness, discomfort and anxiety.^{1,2}

A lot of pregnant women require medications which are not related to pregnancy and a main chunk of these medicines are due to Ear, Nose and Throat (ENT) related complaints and issues. Most of these symptoms are temporary and minor but it is still important for practitioners to recognize the etiology of these symptoms to manage and assure the patient.¹

This study aims to articulate a substantial measure to manage such patients and create awareness. The significance of the study lies in refining the quality of life of a pregnant woman by avoiding use of drugs for these

symptoms especially in first trimester. This model will serve the purpose to expose the ENT issues like epistaxis, rhinitis, Eustachian tube dysfunction, pyogenic granuloma, gastro esophageal reflux disease (GERD) etc.

There is a need to manage such symptoms safely without affecting the fetus. Their impact on maternal life can be significant, also there is need to study the frequency of these ENT manifestations in different regions of the India.

METHODS

Fifty pregnant women presented with ENT complaints in different trimesters of pregnancy or postpartum (1 week of delivery), were examined in ENT outpatient department. They were divided in three groups for noting the incidence of various complaints according to the trimester they occur.

Group 1: 1-14 weeks (First trimester), Group 2: 15-28 weeks (Second trimester), Group 3: 29-42 weeks (Third trimester) and post-partum period upto 1 week of delivery. Any past history of ENT disorders was also reported to know if there was worsening of these disorders in pregnancy. Study design: Prospective, Type of study: Observational, Study population: 50 pregnant women. Inclusion criteria - Antenatal cases attending the outpatient department of ENT, including postpartum cases upto 1 week after delivery. Exclusion criteria - ENT Trauma cases not signifying any relation to pregnancy. Pregnant females with any other systemic disease like hypertension and diabetes were excluded from the study.

This study was conducted as an ICMR approved project for MBBS students, after obtaining clearance from the institutional ethics committee and only those participants were enrolled in the study who were willing to give written informed consent.

Detailed ENT examination was done and findings were noted. Nasal examination included anterior rhinoscopy, posterior rhinoscopy, diagnostic nasal endoscopy. Nose was to be examined for any changes in nasal mucosa, nasal patency. Oral cavity, larynx and pharynx examination included indirect laryngoscopy using Hopkin's rod telescope (90°). Ear examination included examination under microscope, pure tone audiometry and Impedance audiometry. All the procedures were done without anesthesia because of risk of toxicity to the fetus. All the details of patient complaints and examination findings and treatment were noted on Performa which were subsequently analyzed and compared. The medical treatment was given only in cases with emergency situation while elective surgery was advised after delivery only.

Statistical analysis: The data was tabulated as number of participants with a particular complaint. Results were analyzed using non parametric tests (Chi-square test),

parametric tests (two tailed student t- test) and correlation (Pearson correlation coefficients) analysis. A $p < 0.05$ was considered statistically significant.

RESULTS

Figure 1 shows the various complaints reported by participants in the study. The maximum number of complaints were seen in third trimester (60 various ENT complaints), followed by second trimester (44 various ENT complaints) to the out patients department though, it does not reveals a statistically significant ($p > 0.05$) difference.

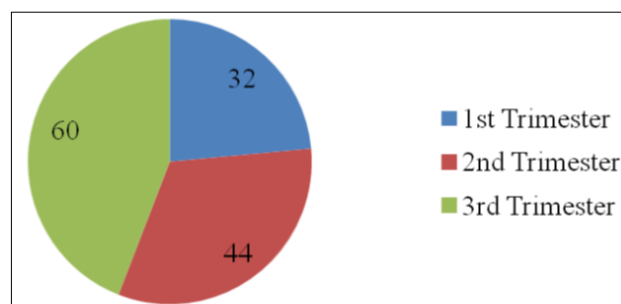


Figure 1: Number of complaints in various trimesters of pregnancy.

Various complaints seen in different trimesters and their relative abundance are shown in Figure 2. Maximum number of participants complained of problem in the nose in the first and second trimester and problems in throat in the third trimester.

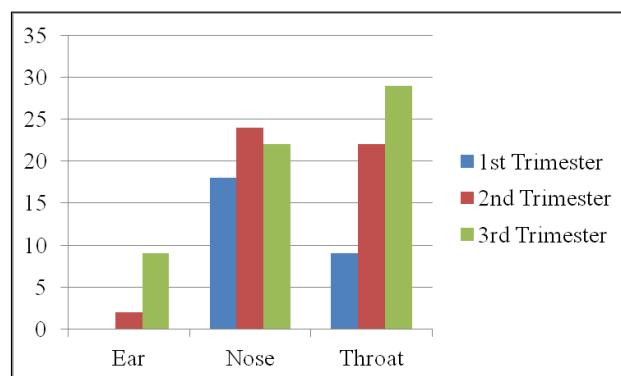


Figure 2: Various complaints seen in various trimesters and their relative abundance.

Hearing disturbances were most commonly seen in 3rd trimester (Figure 3). Increase in discharge from ears was not seen in any of the trimesters. However, itching complaints in ear which are usually seen in whole body during third trimester are frequent. Ear itching was severe and many patients complained of it several times in a day. Eustachian tube dysfunctions were also seen in 3rd trimester though less frequent than other ear complaints. There was no statistically significant disturbance seen between the trimesters.

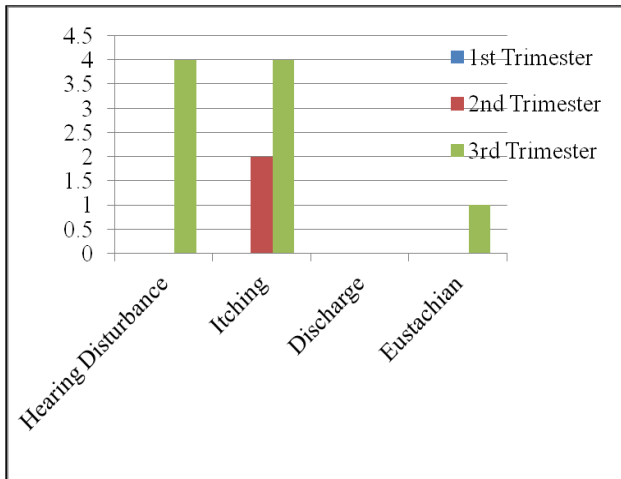


Figure 3: Ear complaints in study participants during each trimester.

The most commonly observed nasal complaints are shown in Figure 4. A significantly higher number of patients complained of hyperosmia in 1st and 2nd trimester ($p < 0.05$) as compared to 3rd trimester. A significantly higher number of patients complain of rhinitis in 3rd trimester ($p < 0.05$). More cases of epistaxis were observed in 3rd trimester followed by 2nd and then 1st trimester. Incidence of snoring increases in pregnancy especially in 3rd trimester.

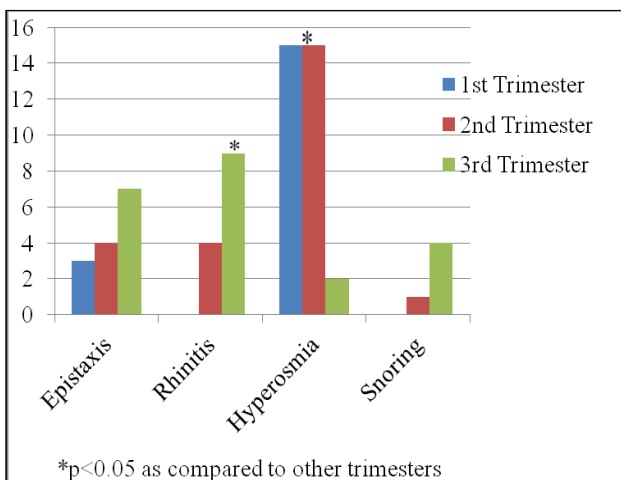


Figure 4: Nose complaints in study participants during each trimester.

The changes observed in throat are given in figure 5. A significantly higher number of GERD were noted in 3rd trimester as compared to 1st and 2nd trimester ($p < 0.05$). Though, significantly higher number of pregnant patients complained of nausea and vomiting in 1st trimester as compared to 2nd and 3rd trimester ($p < 0.05$).

The postpartum patients observed did not complained of any ENT issue. In fact, when they were asked of these complaints, it was reported that their complaints resolved postpartum which they were suffering during pregnancy.

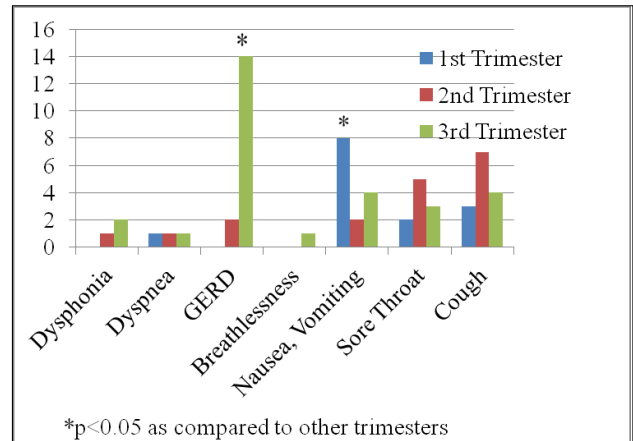


Figure 5: Throat complaints in study participants during each trimester.

DISCUSSION

The MEDLINE, EMBASE databases have case controls, prospective cohorts, retrospective cohorts, case reports, case series, cross sectional studies related to otological, rhinological and laryngopharyngeal symptoms in pregnant females. According to search strategy adapted by an article [3], MEDLINE (1948 to November 2010), and EMBASE (1966 to November 2010) databases most of the studies showed: Pregnancy and otological symptoms are: Neurological complaints > hearing disturbance = hearing loss > balance, Pregnancy and rhinological symptoms are: rhinitis > epistaxis > other olfactory disorders, pregnancy and laryngopharyngeal symptoms are: GERD >> dysphonia. As shown in the Table 1.

Table 1: Complaints seen in various trimesters.

Otological	Rhinological	Laryngopharyngeal
Hearing disturbances	Hyperosmia	GERD
Itching	Rhinitis	Nausea and vomiting
Eustachian tube dysfunction	Epistaxis	Cough
	Snoring	Sore throat
		Dysphonia
		Dyspnea
		Breathlessness

Ear complaints in pregnancy

It has been observed that the otological complaints noted are tinnitus, hearing loss, auto phony, Bell's palsy, otosclerosis, balance problems/ dizziness, external ear canal granulomas.³

Hearing loss

The pregnant females often present with low frequency sensorineural hearing loss (SNHL) and intolerance to

loud noise (mimicking cochlear pathology). The hearing level decreases for 125, 250 and 500 Hz, starting in 1st trimester and progressive in 2nd and 3rd trimesters. For frequencies of 1000 Hz and above, there occurs no significant difference during pregnancy. The speech audiometry findings are normal during pregnancy. Nevertheless, this low frequency hearing loss doesn't reach pathologic levels and returns to normal in the postpartum period.⁴ This decrease in hearing level is explained by excessive water and salt retention due to changes in estrogen and progesterone levels which cause alterations in sensory nervous system and on hearing mechanism.⁵

While this low frequency hearing decrease mimics Meniere's disease, the findings are always within the physiological limits. On the other hand, the symptoms of Meniere's disease worsen in a preexisting case and the patients have more attacks during pregnancy. Sudden sensorineural hearing loss (SSNHL) during pregnancy has been described in case reports.⁶ The one with similar SSNHL with each serial pregnancy and all episodes resolving postpartum, is interesting.⁷

Otosclerosis is one of the most common causes of acquired hearing loss and is accepted as being aggravated with pregnancy. Since the 1930s, the onset of otosclerosis was linked with pregnancy, with advice to patients ranging from termination of pregnancy and sterilization⁸ to delaying surgical treatment until their families are complete.⁹ However, since 1974, an increasing number of studies are dismissing the relationship between pregnancy and otosclerosis as being coincidental.^{9,10}

Tinnitus is the common complaint during pregnancy, with various proposed theories of pathogenesis including hyperdynamic circulation, increase in perilymphatic fluid pressure and hormonal changes.¹¹

Eustachian tube dysfunction: Autophony is a classical complaint of these patients, suffering from a Patulous Eustachian Tube (PET). A study demonstrated a link between PET, weight gain during pregnancy, and elevated serum estradiol levels, but only 5 patients were symptomatic and so the strength of theory is doubtful.¹²

Balance: Vertigo or dizziness is frequently experienced during pregnancy and is among the common complaints from pregnant women.¹³ Attacks of vertigo can increase with the decline in serum osmolality with pregnancy, may be influenced by the hormonal or fluid-volume changes occurring in the vestibular system.^{13,14}

Though in our study there occurred number of changes in ear, they were not clinically or statistically important in most and moreover, spontaneously resolved in postpartum. There were 4 cases each with hearing disturbances and itching inside the ear.

Nasal complaints in pregnancy: The major nasal manifestations in pregnancy are hyperosmia, unexplained rhinitis, epistaxis, snoring.

Rhinitis

According to our study rhinitis occurs in total of 12 patients out of 50 that is 24%. These results correlate with a result of another study which says rhinitis occurs in 22% of pregnancies.¹⁵ 4 women out of 50 complained of rhinitis in 2nd trimester (8%) and 9 women out of 50 complaint in 3rd trimester (18%). Ellegard¹⁶ defined this as nasal congestion in the last 6 or more weeks of pregnancy, without other signs of respiratory tract infection, with no known allergic cause and with complete resolution of symptoms within 2 weeks after delivery. Although the use of antihistamines and decongestants is not linked to any increase in the rate of foetal malformations, many of these antihistaminic and decongestants carry a warning that these should be avoided during pregnancy.⁴

Ellegard and Karlsson¹⁷ have demonstrated an increase in IgE levels against house dust mites in women with pregnancy rhinitis but no increase in allergic symptoms. Sequelae of pregnancy rhinitis include an exacerbation of concomitant asthma and an effect on quality of life.¹⁸ The ciliary action of the nasal mucosa is also decreased thus making the pregnant females vulnerable for recurrent sinuses infections.¹⁹ Female sex hormones, which continue to rise in pregnancy, have been implicated as an etiological factor, but they remain debated among authors in literature.²⁰

Smell disturbances

Altered olfactory perceptions are noted in pregnancy frequently. Most of the time increase in smell sensitivity is observed due to increased level of estradiol and swelling of olfactory membrane.²¹ Similar changes were observed in our study where hyperosmia was frequently complained by pregnant females and it was more commonly seen in first and second trimester. They frequently complained of increased sensitivity to perfumes, ghee, oil, flour etc. and they felt nausea and had headache thereafter. According to National Geographic Smell Survey including 13610 pregnant and 277228 non pregnant U.S. women between 20 and 40 years of age, in comparison to non-pregnant women, pregnant women rated their own sense of smell lower, rated the test odors less pleasant, more often classified the test odors as inedible, were less likely to report odor-evoked memories and used perfume and cologne less frequently. Differences in odor detection and intensity rating did not favor either group.²¹

Epistaxis

Epistaxis during pregnancy is common and in our study, epistaxis was most commonly seen in 3rd trimester. A

total of 13 women out of 50 suffered of epistaxis that is 26%. It is close to results obtained by a study which says epistaxis occurs in 20% of pregnant women as compared with 6% of non-pregnant women.²²

It may be due to increased vascularity of the nasal mucosa due to effects of estrogen, which is also associated with the development of giant cell reparative granulomas of the maxilla and mandible or granuloma gravidarum²³ lobular capillary hemangiomas or pregnancy tumor or nasal hemangiomas. Nasal hemangiomas are hypervascular lesions arising in the nasal cavities during the early months of pregnancy and often involute following delivery or termination of pregnancy.²⁴

In a large prospective cohort study on 1475 pregnant women a link was demonstrated between women who experience epistaxis during the antenatal period and postpartum hemorrhage. The data showed a 10.7% relative risk compared with 6.2% in those with no nose bleeds.²²

Throat complaints and pregnancy

GERD

A total of 14 patients out of 50 complained of regurgitation and heart burn, i.e. 28% of pregnant ladies. Similarly, a study reports that GERD occurs in 30-50 percent of pregnant ladies.²⁵ The underlying reason for GERD is thought to be decrease in lower esophageal sphincter pressure secondary to influence of sex hormones such as progesterone.²⁵ Nausea and vomiting was commonly and frequently seen in first and second trimester as compared to third. This again happens because of changes in hormone levels in pregnancy.

When specifically asked, patients complained of snoring in pregnancy which they never experienced before and some did complain of increased intensity of snoring. It is seen in 2nd and 3rd trimester with a higher incidence of snoring in 3rd trimester. A total of 5 patients out of 50 complained of snoring (10%). According to two studies, the incidence of snoring in pregnancy is 14%-23%.^{26,27} Our results are close to the lower limit of this.

Other complaints such as dysphonia, dysphagia, and breathlessness were also seen but they were not statistically significant. Dysphonia may result from vocal fatigueness. The participants also complained of increased cough and sore throat for unknown reasons.

The pregnant females may complain of foreign body sensations in the throat.²⁸ Laryngopharyngeal reflux (LPR) is considered to play an etiopathogenic role in symptoms of dysphonia, dysphagia, throat clearing, and globus and can occur in the absence of symptoms typical of GERD.²⁹

Further studies may be conducted at different regions to know the prevalence of these disorders. Furthermore, this may initiate exploration of this sector of ENT complaints in pregnancy.

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Conflict of interest: None declared

Ethical approval: The study was approved by the institutional ethics committee

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