Hearing loss in pregnancy

V. Ashok Murthy · Kirtan Krishna

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Abstract To study hearing loss in healthy pregnant women. Tertiary care hospital. Prospective study. We screened fifty healthy, non-complicated pregnant women (study group) in the third trimester for hearing loss who had no previous history for the same. Fifty healthy, non-pregnant women (control group) were also screened for hearing loss with a normal pure tone audiogram (PTA) for evidence of hearing loss. Thirteen women in the study group had evidence of hearing loss, in the form of absence of distortion product otoacoustic emission (DPOAE), though the PTA was within normal limits. In the control group, two women had evidence of hearing loss, in the form of absence of DPOAE with normal PTA. This study proves that pregnancy exacerbates hearing loss, if the patient has any risk factors for the same.

Keywords Pregnancy · Distortion product otoacoustic emission · Hearing loss · Pure tone audiometry

Introduction

During pregnancy lot of physiological changes takes place in the body. The body reacts accordingly to adapt to the changes which are caused by female sex hormones.

During pregnancy the person who had any pre-existing disease gets either exacerbated or may show remission. For example a potential diabetic may become a full blown

diabetic. The seizure threshold is decreased in an epileptic pregnant women. Keeping this in mind, hearing status was screened in women who had no history of loss of hearing.

Hypothesis

To study hearing loss in healthy pregnant women.

Material and Methods

1. Inclusion criteria: Healthy pregnant women in the age group of 20–25 years, uncomplicated, third trimester, with no history of hearing loss, normal pure tone audiogram (PTA).
2. Exclusion criteria: Pregnant women not meeting the above age criteria, complications of pregnancy, first and second trimester, any history of hearing loss, PTA is showing evidence of hearing loss.

Procedure

All healthy pregnant women visiting the obstetrics department, in the age group of 20–25 years, uncomplicated pregnancy, who had no history of hearing loss were selected.

This study group underwent routine ENT examination, the ear was examined otoscopically to rule out any abnormalities and PTA was done. These pregnant women who had a normal PTA further underwent screening by distortion product otoacoustic emission (DPOAE). The results were tabulated.

V. Ashok Murthy (✉) · K. Krishna
Department of ENT, PES Institute of Medical Science
and Research, Kuppam 517425, AP, India
e-mail: ashokmurthy_army@yahoo.co.in

Table 1 Contingency table, showing presence/absence of DPOAE in pregnant/non-pregnant women

	DPOAE absent	DPOAE present	Total
Study group (pregnant women)	13	37	50
Control group (non-pregnant women)	2	48	50

The control group was also made to follow the same procedure. The control group consisted of healthy non-pregnant women, in the age group of 20–25 years, with no ear, nose or throat abnormalities and no previous history of hearing loss.

Result

Fifty healthy pregnant women, in the third trimester of pregnancy without any ENT abnormalities and a normal PTA were screened by DPOAE. Thirteen pregnant women had absent DPOAE.

In the control group, two women from a group of fifty non-pregnant healthy women had absent DPOAE.

The results were tabulated by 2×2 contingency table Table 1.

DPOAE was absent in 26% of the women who were pregnant.

Whereas DPOAE was absent in 4% of healthy women who were non-pregnant.

The P value equals: 0.0038.

So the association is very statistically significant.

Discussion

In pregnancy, the female physiology undergoes tremendous changes [1]. During the third trimester, the female sex hormones reach their peak during the gestation period.

As such during pregnancy, any pre-existing disease or disorders gets exaggerated or may show remission in a few disorders.

For instance cholestasis of pregnancy [2]. Pregnancy hormones affect gall bladder function, resulting in slowing or stopping the flow of bile. Cholestasis is more common in the last trimester when the hormones are at their peak.

It has been long known that pregnant women are at greater than usual risk of venous thromboembolism [3]. Hypertension [4], anaemia [5], diabetes mellitus [6] get more pronounced due to increased physiological demand.

This study analyses this aspect with respect to hearing loss.

Fifty pregnant women in the age group of 20–25 years, without any complications of pregnancy, who were in the third trimester, without any previous history of hearing loss and Ear, Nose and Throat abnormalities, were selected.

All the fifty healthy pregnant women were having a normal hearing threshold on PTA. DPOAE was done to this group, who showed absence of DPOAE in 26% of the pregnant women.

This reveals that pregnant women who harbor risk factors for loss of hearing are prone for hearing loss. The risk factors can be in the form of nutritional imbalance [7], micro and macro elements deficiency [8], low threshold for noise intolerance [9], sensitivity for toxins [10], etc.

These pregnant women who had absent DPOAE should be advised to avoid the risk factors by taking a proper and detailed history and corrective measures taken to avoid the risk of progressive hearing loss.

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