

Original Research Article

## To evaluate the pregnancy and perinatal outcomes of pregnant women with respiratory disorders.

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### Abstract

**Background & Methods:** The aim of the study is to evaluate the pregnancy and perinatal outcomes of pregnant women with respiratory disorders. Pregnant women with respiratory disorders attending the Obstetrics and Gynaecology outpatient department in MGMMC and M.Y. group of hospital Indore, fulfilling the inclusion and exclusion criteria, are considered and included after collecting the informed consent. A total of 60 women are included in the study.

### Results:

**Conclusion:** Respiratory disease has been found to be a serious impact on the maternal and fetal outcome. The patients with chronic respiratory should receive pre-pregnancy counseling and education regarding the risks of pregnancy and the importance of continuing their medications.

The patients with respiratory disorders should be detected earlier to prevent the adverse foeto- maternal outcome. Regular antenatal visits would help to detect the respiratory disorders earlier and management could be done to prevent adverse outcome.

### 1. Introduction

WHO estimates that 303,000 women died in 2015, including 302,000 in developing countries.(1) Respiratory disease, often less pointed at, is still the third highest cause of mortality in the world's female population in middle-income countries, with tuberculosis among the top five causes of death among women of reproductive age in developing countries.(2)

During pregnancy, anatomical and physiological changes occur to meet the increased metabolic needs, permit appropriate development of the foetus, and prepare the body for childbirth.(3) The changes begin early in the first trimester, peaking at the term of labour and reverting to pre-pregnancy levels by a few weeks into the postpartum. These changes are well tolerated in healthy females but may aggravate or unmask a pre-existing disease or pregnancy- related pathophysiology.

In recent years, the frequency and significance of acute and chronic respiratory diseases in pregnant women have surprisingly increased. Pregnant women with respiratory conditions ranging from asthma to adult respiratory distress syndrome should be promptly recognized and treated. Clinicians should understand cardiopulmonary physiology during pregnancy.(4) The changes are seen in respiratory parameters as pregnancy progresses. These include a reduction in the total lung capacity, expiratory reserve volume, and residual volume. A 20% decline in functional residual capacity seen in the third trimester is the most critical

physiological change in normal pregnancy. This change results from the elevation of the diaphragm because of the expanding uterus. By the second half of the pregnancy, there are also changes in the various lung volumes. Besides these anatomic changes, hormonal changes during pregnancy also affect respiratory mechanics(5).

The most commonly encountered respiratory complications in pregnancy are bronchial asthma exacerbations (4–8%), pulmonary embolism (five-fold increase in risk), pulmonary oedema, infections (pneumonia—0.04 and 1%), and acute respiratory distress syndrome (ARDS) (0.2– 0.3%).(5) Less common conditions are non-infectious pneumonia (eosinophilic) and pharyngitis.

## 2. Material and Methods

The study was conducted at the department of Obstetrics and Gynaecology in MGMMC and M.Y. group of hospital, Indore, tertiary care teaching hospital. All Pregnant women with respiratory problems visiting the department of Obstetrics and gynaecology, MGMMC, and M.Y. hospital.

Pregnant women with respiratory disorders attending the Obstetrics and Gynaecology outpatient department in MGMMC and M.Y. group of hospital Indore, fulfilling the inclusion and exclusion criteria, are considered and included after collecting the informed consent. A total of 60 women are included in the study.

### Inclusion criteria:

#### All pregnant women with,

1. Bronchial Asthma
2. Pleural effusion
3. Patients with other respiratory problems.

### Exclusion criteria:

1. COVID-19 patients

## 3. Result

Table No: 1 Age wise distribution of the study subjects (n=60)

	<b>FREQUENCY</b>	<b>%</b>
<b>&lt;20 YEARS</b>	7	11.67
<b>21-30</b>	51	85.00
<b>31-40</b>	2	3.33
<b>TOTAL</b>	60	100.00

<b>MEAN SD</b>	<b>24.25 ± 3.32</b>
<b>MIN, MAX</b>	<b>14, 36</b>

In our study majority 51 (85%) of the patients were in the age group of 21-30, followed by 7(11.67%) in the age group <20 years and 2 (3.33%) in the age group 31-40.

The mean age group in our study was  $24.25 \pm 3.32$ , with the minimum age of 14 years and the maximum being 36 years.

Table No: 2 Age wise distribution of the study subjects (n=60)

	<b>FREQUENCY</b>	<b>%</b>
<b>&lt;20 YEARS</b>	7	11.67
<b>21-30</b>	51	85.00
<b>31-40</b>	2	3.33
<b>TOTAL</b>	60	100.00
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Table No: 3 Distribution of the study subjects based on the diagnosis (n=60)

DIAGNOSIS		FREQUENCY	%
ASTHMA		6	10.00
TUBERCULOSIS		6	10.00
ACUTE RESPIRATORY DISTRESS	VIRAL PNEUMONIA	30	50
	BACTERIAL PNEUMONIA	18	30

On analyzing the diagnosis among the study population majority 48 (30 Viral pneumonia, 18 Bacterial pneumonia) [80% (50%, 30%)] were diagnosed with acute respiratory distress followed by asthma 6 (10%) and tuberculosis 6 (10%).

Table No: 4 Distribution of maternal outcome among study subjects

MATERNAL OUTCOME		FREQUENCY	%
ICU ADMISSION		52	86.6
DURATION OF ADMISSION	<48 HRS	15	25
	3-5 DAYS	28	46.6
	UPTO 7 DAYS	7	11.6
	>7 DAYS	2	3.3
MECHANICAL VENTILATION		52	86.6

On analyzing the maternal outcome, majority 52 (86.67%) of study subjects required ICU admission and mechanical ventilation, out of which 28 (46.6%) stays in ICU for 3-5 days, 15 (25%) stays in ICU for <48 hrs, 7 (11.6 %) stays in ICU upto 7 days followed by 2 ( 3.3%) stays in ICU for >7 days.

#### 4. Discussion

Respiratory disease, which is often less pointed at, is still the third highest cause of mortality in the world's female population in middle-income countries. During pregnancy, women are exposed to nasal congestion, hyperventilation and the diaphragm moves up.

In our study entitled "A prospective study of maternal and perinatal outcome in antenatal patients with respiratory disorders" aimed to evaluate the perinatal outcome among women with respiratory disorder(6).

Shashikala Karanth et al. (7) reported that most respiratory-disorder patients were 20–35 years old (94.4%).

Didier KA et al. (8) in their study found that the most affected age group is between 19-29 years old, i.e., 63.64% of the total number, with an average of 27.39 years which was in concurrence with our study, where the majority, 51 (85%) of the patients were in the age group of 21-30, followed by 7 (11.67%) in the age group <20 years and 2 (3.33%) in the age group 31-40.

The mean age group in our study was  $24.25 \pm 3.32$ , with the minimum age of 14 years and the maximum being 36 years.

Didier KA et al., (8) in their study, reported most of the Maternal complications were by cardiovascular complications in 4.2% of cases, followed by respiratory distress in 2.4% of cases.

In our study majority, 52(86.67%) of study subjects developed respiratory distress requiring mechanical ventilation, followed by 27 (45%), had a preterm delivery, 4 (6.67%) had a spontaneous abortion, and 2 (3.33%) had PROM.

Majority of the foetus was delivered preterm. Didier KA et al., (8) in their study, reported Foetal harm was most marked by threats of abortion or childbirth (13.8%), pre and postpartum death (9%); 5 spontaneous abortions and eight premature births observed either 7.8% followed by premature rupture of the membranes (2.4%) and 3 cases of IUGR (1.8%)(9).

On analyzing the impact of the respiratory disorder on the outcome of foetus, it was found that the majority, 35 (58.33%) of the babies were low birth weight with a mean birth weight of  $2.13 \pm 0.51$ , followed by IUGR among 19 (31.67%), 12 (20%) SGA and 4 (6.67%) were IUD(10).

#### 5. Conclusion

Respiratory disease has been found to be a serious impact on the maternal and fetal outcome. The patients with chronic respiratory should receive pre-pregnancy counseling and education regarding the risks of pregnancy and the importance of continuing their medications.

The patients with respiratory disorders should be detected earlier to prevent the adverse foeto- maternal outcome. Regular antenatal visits would help to detect the respiratory disorders earlier and management could be done to prevent adverse outcome.

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