# PREGNANCY OUTCOME IN WOMEN WITH MITRAL STENOSIS

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## ABSTRACT

**Objectives:** To determine the fetal and maternal outcome in Women with Mitral Stenosis.

**Methodology:** A retrospective descriptive study was conducted in Obstetrics and Gynecology department of Al-Aleem Medical College attached with Gulab Devi Educational Complex Lahore from 1st April 2018 to 31st March 2019. All admitted pregnant ladies with Mitral stenosis (mild, moderate and severe) were enrolled in the study.

**Results:** A total of forty cases were enrolled in this study. The Mean age of woman was 28.3 ± 2.5 years. Twenty one women (52.5%) were 20 – 29 years. Out of 40 women, 33 (82.5%) were multiparous, and 7 (17.5%) were Primi-gravida as shown in Table 1. Majority of the women 22(55.0%) were having moderate and 13 women (32.5%) were suffering from severe mitral stenosis as shown in Table 2. Lower segment caesarean was the common mode of delivery in 25 (62.5%) and spontaneous vaginal delivery was conducted in 15 (37.5%) as shown in Table 3. Neonatal and Maternal outcome was shown in Tables 4 and5.

**Conclusions:** Pregnancy with mitral stenosis has a strong link with poor feto-maternal outcome.

**Key Words:** Pregnant women, Mitral Stenosis.

## INTRODUCTION

The reported incidence of cardiac lesion during pregnancy is about 0.3 to 3.5% and it is amenable for 10-25% of maternal demise[1]. In underdeveloped countries like Pakistan mitral valve lesions, about 94.5% are because of rheumatic heart disease and the top of the list is mitral stenosis roughly 55%[2]. In well-developed countries the less incidence of rheumatic heart lesion, advance surgical facilities in congenital heart problems has enhanced adultery age group in patients with congenital heart disease[3]. The mitral valve opening area is 5 cm square normally. Mitral stenosis is classified to be mild when mitral valve opening is less than 4 cm square, moderate and severe when mitral valve opening area is 2 cm square and 1cm square respectively. Steno tic rheumatic valves are hard with reduced leaflets movements, commissural coalition, ringed calcification and chorale fusion[4].The cardiac output is fixed with reduced ability to cope with the enhance demands during pregnancy on heart due to increased heat rate and intravascular volume. Intense hemodynamic changes occur at the time in pregnancy, during labor and after delivery period[5]. The changes start from the first trimester of pregnancy and reach maximum at the end of second trimester[6].There is increase in blood volume by 40-50 percent, heart rate by 10-15 beat per minute, 30-50 percent cardiac output in addition to move up in stroke volume and worsen peripheral vascular resistant[7,8]. These changes come back within one month after delivery[9]. Physiological changes during pregnancy may precipitate cardiac failure in patients with well tolerated cardiac lesions[10]. The electrocardiography, echocardiography, complete blood picture, and oxygen saturation are used to check the heart functions[11]. Regardless of new advances in diagnostic cardiology methods, the echocardiography remain the gold standard investigation both for evaluating the correctable physiological changes during pregnancy and colligate alterations in the patency of valve[12]. The multidisciplinary approach should be used for proper management of the pregnant women with heart disease[13]. Pregnancy with mitral stenosis has a strong link with poor feto-maternal outcome[14]. Premarital counseling is one of the most significant issues because some of the patients may require surgical correction of mitral stenosis before marriage or pregnancy. According to recent literature the incidence of cardiac lesions during pregnancy is still 0.1 to 4 percent[15]. In Pakistan due to late referral to tertiary care hospitals results delay in diagnosis which leads to various complications. The purpose of the study is to determine the prevalence of feto-maternal outcome in women having Mitral Stenosis. The study would be helpful in generating the hospital data and highlight the load of disease because of that it would help in streamlining the management plan of the women.

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## MATERIAL AND METHODS

A retrospective descriptive, study was conducted in Obstetrics and Gynecology department, of Al-Aleem Medical College attached with Gulab Devi Educational Complex Lahore from 1st April 2018 to 31st March 2019. All admitted pregnant Women having Mitral stenosis (mild, moderate and severe) were enrolled in the study. Information about age, parity, symptoms as breathlessness, generalized weakness, palpitations, duration of pregnancy, ultrasound findings, echocardiographic findings and mode of delivery, maternal and fetal outcome would be gathered by entering all information in the Performa. Women suffering other medical illness were excluded from this study. All the data were entered rechecked by an expert one for confirmation of correct entry and then analyzed using SPSS version 12. Descriptive Statistics was used to check the frequency and percentage of all quantitative variables

## RESULTS

A total of forty cases were enrolled in this study. The mean age of the woman was 28.3 ± 2.5 years. Major chunk of women 21 (52.5%) were 20 – 29 years of age.

**Table 1:** Demographic Data of Women (n=40)

| Variables | No. of Women | Percentage |
|---|---|---|
| **Age Years** | | |
| 20 – 29 | 21 | 52.5 |
| >29 | 19 | 47.5 |
| **Parity** | | |
| Primigravida | 7 | 17.5 |
| P1 – P2 | 17 | 42. 5 |
| >P3 | 16 | 40.0 |
| **Booking Status** | | |
| Un-booked | 14 | 35.0 |
| Booked | 26 | 65.0 |
| **Gestational Age (Weeks)** | | |
| < 37 | 8 | 20.0 |
| >37 | 32 | 80.0 |

Majority of the women 22(55.0%) were having moderate and 13 women (32.5%) were suffering from severe mitral stenosis as shown inTable2.

**Table 2:** Mitral Stenosis- Grading (n=40)

| Mitral Stenosis | No. of Women | Percentage |
|---|---|---|
| Mild | 5 | 12.5 |
| Moderate | 22 | 55.0 |
| Severe | 13 | 32.5 |

Lower segment caesarean was carried out in 25 (62.5%) women and spontaneous vaginal delivery was conducted in 15 women (37.5%) as shown in Table 3.

Out of 40 women, 33 (82.5%) were multiparous, and 7 (17.5%) were primi-gravida. Majority 26 (65.0%) women were booked and 14 (35.0%) were un-booked. Pre-maturity defined as < 37 weeks of gestation was observed in 8 (20.0%) women as shown in Table 1.

**Table 3:** Mode of Delivery (n=40)

| Mode of Delivery | No of Women | Percentage |
|---|---|---|
| Spontaneous vaginal Delivery | 15 | 37.5 |
| Lower segment C/S | 25 | 62.5 |

Neonatal outcome was shown in Table 4. Intra uterine death occurred in only two patients (5.0 %) having severe mitral stenosis.

**Table 4:** Neonatal Outcome in Patients with Mitral Stenosis (n=40)

| Outcomes | No. of Neonates | Percentage |
|---|---|---|
| Preterm Birth< 37 W | 8 | 20 |
| Low Birth Wt.<2.5K.g | 15 | 37.5 |
| Low Apgar < 6 | 13 | 32.5 |
| Nursery Admission | 11 | 27.5 |
| Intra Uterine Death | 2 | 5.0 |

Maternal outcome was shown in Table 5. All the women were saved except one (2.5%) who expired on fifth day of LSCS, because of acute pulmonary edema.

**Table 5:** Maternal Outcome in Patients with Mitral Stenosis (n=40)

| Outcomes | No. of Women | Percentage % |
|---|---|---|
| Congestive Heart Failure | 22 | 55.0 |
| Chest Pain | 10 | 25.0 |
| Arrhythmias | 5 | 12.5 |
| Mortality | 1 | 2.5 |

## DISCUSSION

In the under developed countries like Pakistan Rheumatic heart disease is said to be the communal cardiac lesion during pregnancy with Mitral Stenosis at the top (16, 17). Successful managing the pregnant women having mitral stenosis is still a great challenge to the obstetrician because of increased risks in such patients. Pregnancy induced hyper dynamic circulatory

alterations are responsible for up rise in left atrial pressure, that leads to increased risk of left heart failure accompanying pulmonary edema (18). The poor feto-maternal outcome is because there is lack of ability to deal with the physiological changes in pregnancy, stressful labor and hemodynamic alterations following delivery (19). Early diagnosis, multi- disciplinary team management, would lead in fruitful outcome both for mother and baby in most of the cases (10). Echocardiography during pregnancy is said to be the gold-standard tool to determine the severity of cardiac problem (20).

Age is the significant factor because most of the complications are linked with increasing age. In this study the mean age of the women was 28.3 ± 2.5 years. Major chunk of women 21 (52.5%) were 20 – 29 years of age. This is similar with other studies (21, 22). Mild mitral stenosis was found in 12.5% women, moderate stenosis in 55.0% and severe in 32.5% of women. This is consistent with other studies (21). Vaginal delivery was supposed to be the safest route in valvular diseased women but in our study only 37.5% women delivered vaginally and majority 62.5% mode of delivery was LSCS due to other obstetrical indications. This is almost opposite to the others studies conducted by different researchers where majority of the women delivered by vaginal route (21, 22, 23).

Fetal outcome mainly depends on gestational age, degree of mitral stenosis and wellbeing of the women. In our study 20% of the neonates were preterm, 37.5% had low birth weight, and 32.5% had low Apgar score. This is similar with national and international literature (21,22,23,24, 25) Nursery admission was required in 27.5% and intrauterine death was found in 5% of women who was suffering from severe Mitral Stenosis and element of prematurity was also there This is consistent with other studies (23, 25, 26).

Maternal outcome depends on age of the women, severity of mitral stenosis, duration of pregnancy, current status of women and mode of delivery. In our study congestive heart failure occur in 55% which is quite high as compared with other studies (24, 25, 27). Chest pain was found in 25% and arrhythmias developed in 12.5% which is similar with other studies (22, 26, 27, 28). Maternal mortality was 2.5% which is consistent with other studies (2, 21, 28). The women expired on 5$^{th}$ day after LSCS, who developed acute pulmonary edema.

## LIMITATION

As this retrospective study was conducted in only one hospital, sample size was small so its results could not be generalized. It is further recommended to conduct larger prospective cohort before the results would be generalized.

## CONCLUSION

Pregnancy with Mitral Stenosis is linked up with poor feto-maternal outcome so multi-disciplinary team management is required to get best outcome. In our study though the women were of high risk category but the outcome was remarkable as comparable to worldwide studies.

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