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Research Article

**FETAL-MATERNAL OUTCOME IN PREGNANCY HAVING
ASSOCIATION WITH MITRAL STENOSIS**

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Abstract:

Objective: The aim of this research work is to assess the rate of fetal-maternal outcome in pregnancy associated with mitral stenosis in pregnant females admitted in General Hospital Lahore.

Methodology: This research work covered a duration of two years in Gynecology department of General Hospital Lahore from January 2017 to December 2018. All females with pregnancy with identified MS (Mitral Stenosis) with the help of echocardiography were the part of this research work. We recorded the history about the age, parity number, duration of pregnancy according to the finding of ultrasound & related complaints. We also noted the delivery mode and rate of maternal mortality. Weight at the time of birth and Apgar score were in use for the analysis of the fetal outcome.

Results: A sum of total one hundred and one patients fulfilling the inclusion standard were the part of this research work. The range of age of pregnant females was twenty to twenty-nine years (69.0%) and 81.0% pregnant females were multi-gravidas. The normal delivery through vagina occurred in 66.30% (n: 67) patients & 78.30% pregnancies were term pregnancies. The deliveries, which were preterm, were 21.80% & 27.70% new births were available with low weight. APGAR score of less than seven was available in 14.90% neonates & nine babies met their intrauterine death. Less ejection fraction of less than 55.0% was available in 13.90% (n: 20) females and we found the mortality of mothers in only two cases.

Conclusion: the diseases of heart in the period of pregnancy has association with important amount of morbidity, there should be a careful management in the hospitals with tertiary care to get optimum fetal-maternal outcomes.

Keywords: Cardiovascular, Pregnancies, Hemodynamics, Management, Methodology, Intrauterine, Mortality, Fetal, Maternal, APGAR, Ejection Fraction, Gynecology.

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INTRODUCTION:

A recent research work showed the prevalence of heart disease in pregnancy from 0.1% to 4.0% [1]. In many countries of the world which are under development as Pakistan, MS is very common observed valvar abrasion [2]. Extreme alterations occur in the cardiovascular hemodynamics in the period of pregnancy. Healthy females can tolerate these modifications and compensate the rate of morbidity as well as mortality [3]. Cardiovascular alterations in the period of pregnancy cause greater flow, low hindrance condition alterations which start at seventh weeks of pregnancy duration & persist two weeks after the delivery [4]. There are different methods to evaluate the functional heart capacity like electrocardiography, examination of the complete blood saturation of oxygen & echocardiography [2]. Regardless the modification in the diagnostic methods of heart, echocardiography is the best method to assess the heart complications in the period of pregnancy [5].

The patients having no symptoms of insufficiency of valvar tend to bear the volumetric overload in the period of pregnancy in much better way [6]. It is very vital to discover the procedures to decrease the mortality of mothers because of heart diseases in females having pregnancy [7]. Females with pregnancy and having valvar diseases of heart and better cardiac condition in the duration of pregnancy are available to develop low intrauterine retardation of development, low amount of birth before completion of gestation period and less rate of maternal mortality as well as morbidity [8]. There should be a multi-disciplinary procedure for the management of these patients with the teamwork of obstetrician & cardiologist. This administration must be performing prior to conception, the counselling with the family should be carry out for risk factors and optimal state should be manage for conception [9]. It is very important to detect prior factors of risk that have the capability of forecasting the probability of adverse outcome of pregnancy [10].

METHODOLOGY:

This elaborated research work carried out in gynecology department of General Hospital, Lahore from January 2017 to December 2018. Total 101 patients who got admission in this very hospital were

part of this research work with method of non-probability convenient sampling. All the females suffering with MS, identified with the help of echocardiography after 1st three months of pregnancy were the part of this research work. All the females suffering from any serious diseases as anemia, heart diseases, hypertension, asthma, diabetes mellitus, smokers and kidney diseases were not the part of this research work. We explained the purpose of this research work to all females and all females gave their consent to participate in the research work. We recorded the history about parity number, age, obstruction in breathing & palpitations. The calculation of the gestational age carried out with the help of ultrasound.

Echocardiography was in use for the identification and severity of MS. we also recorded the evaluation of females for new onset of failure of heart & rate of ejection fraction. We observed the delivery mode. We also noted the maternal mortality rate. The assessment of the fetal outcome assesses with the help of less APGAR score at 5 five minute, low weight at the time of birth, delivery before complete gestation age & death of baby in intrauterine death. We entered all this information on a Performa. SPSS V.10 was in use for the analysis of the collected information. Average and standard deviation were in use for the calculation of countable variables. The frequencies were in use for the presentation of the nature of MS as mild, moderate & severe.

RESULTS:

A sum of one hundred and one pregnant females with 13 to 42 pregnancy week with MS (the area of mitral valve greater than 2.50 cm²) were the part of this research work. The average age of the patients was 26.30±4.30 years. Most of the females 69.30% (n: 70) were from twenty to twenty-nine year of age. Among total females 81.20% (n: 82) females were multi-parous, whereas 18.80% (n: 19) females were prim-gravida. Total 41.60% (n: 42) females were available as booked and 58.40% (n: 59) females were not booked. The average gestational period at the time of birth was 36.30±2.80 weeks. We found the prematurity in 21.80% (n: 22) patients (Table-1). Table-2 presents the percentage and amount of females in number for mode of delivery, weight at time of birth, Apgar score, live births, intrauterine deaths, & maternal mortality.

Table-I: Demographic Data of Patients n=101

Variable	No of Patients	Percentage
Age	20-29 yrs.	70.0
	>29 yrs.	31.0
Parity	PG	19.0
		18.800%

	1	31.0	30.700%
	>2	51.0	50.500%
Booking Status	Un-booked	59.0	58.400%
	Booked	42.0	41.600%
Gestational Age (Weeks)	<37	22.0	21.800%
	>37	79.0	78.300%

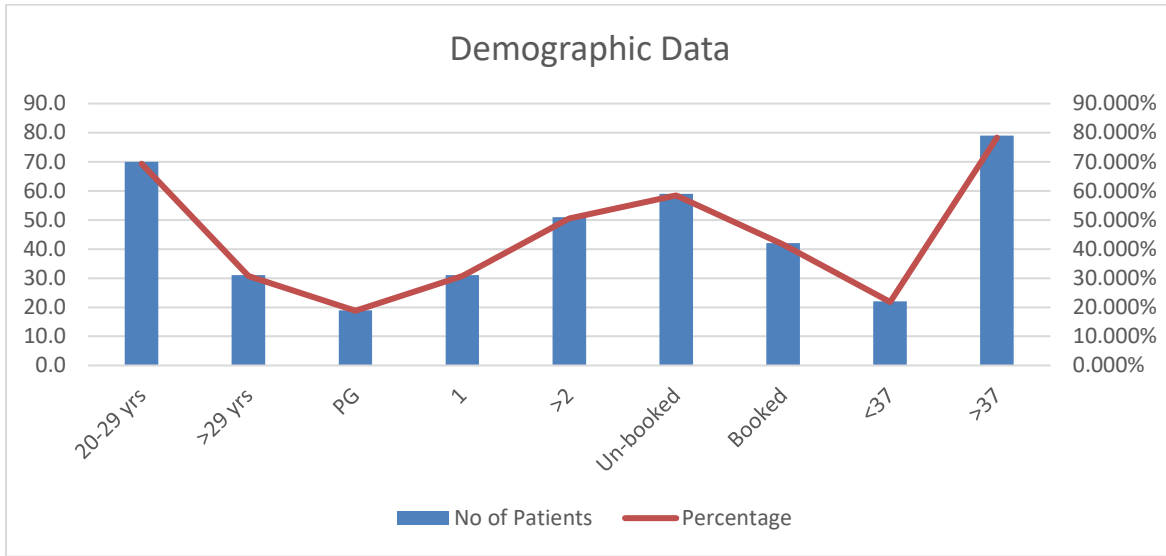
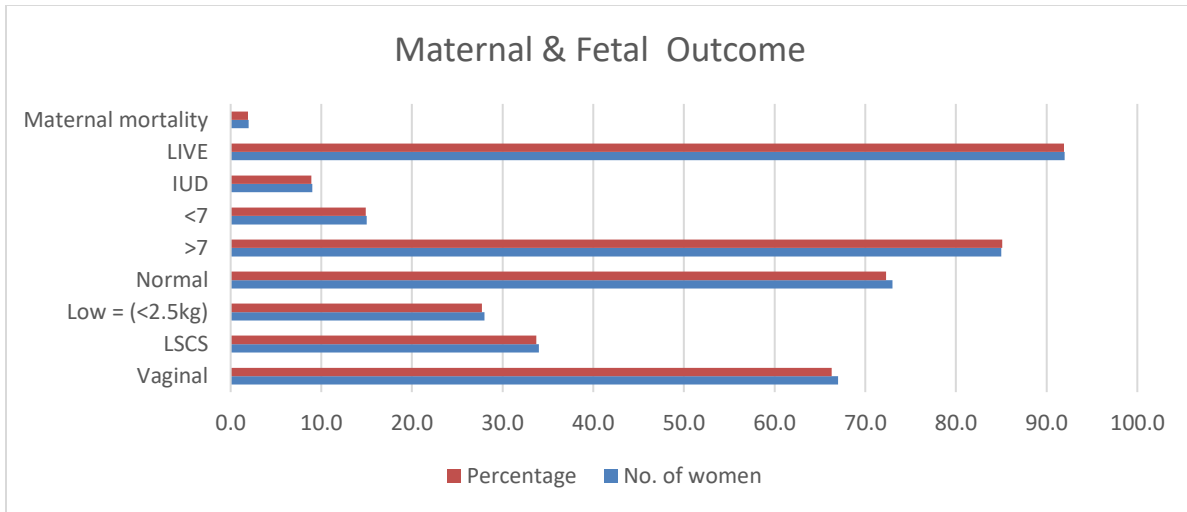


Table-II: Maternal and Fetal Outcome

Outcome		No. of women	Percentage
Modes of Delivery	Vaginal	67.0	66.30
	LSCS	34.0	33.70
Birth Weight	Low = (<2.5kg)	28.0	27.70
	Normal	73.0	72.30
APGAR Score (At 5min)	>7	85.0	85.10
	<7	15.0	14.90
Neonatal outcome	IUD	9.0	8.90
	LIVE	92.0	91.90
	Maternal mortality	2.0	1.90



The stenosis of moderate nature was available in 25.70% (n: 26) females & stenosis of severe nature was available in 13.90% (n: 14) females. The diagnosis of new onset of failure of heart failure

carried out with the help of echocardiography. Less ejection fraction was present in 13.80% (n: 20) females (Table-3).

Table-III: Grading of Mitral Stenosis n=101.

Mitral Stenosis	No. of Women	Percentage
Mild	61.0	60.40
Moderate	26.0	25.70
Severe	14.0	13.90
Ejection Fraction Low (<55%)	20.0	19.80
(>55%)	81.0	80.20

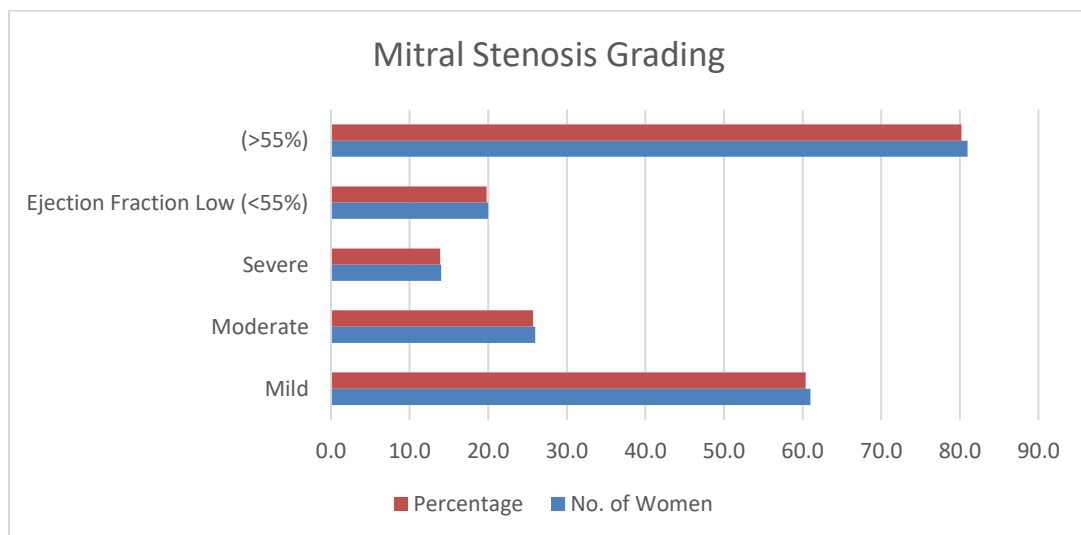
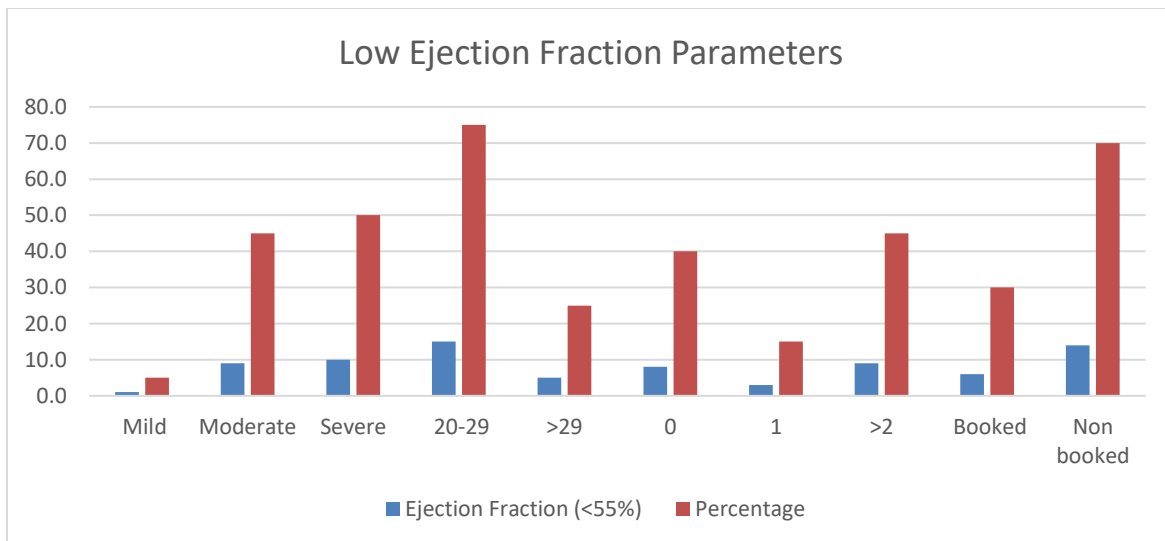


Table-4 shows the nature of MS as mild, moderate and severe, age of females, parity and status of booking of pregnant females with their percentage

and amount in number for each category. Amount of less score of Apgar, low weight at the time of birth & prematurity were very high in the mild nature MS.

Table-IV: Low Ejection Fraction (<55%) With Respect to Mitral Stenosis, Age, Parity and Booking Status. n=20

Parameters		Ejection Fraction (<55%)	Percentage
Mitral Stenosis	Mild	1.0	5.00
	Moderate	9.0	45.00
	Severe	10.0	50.00
Age (years)	20-29	15.0	75.00
	>29	5.0	25.00
Parity	0	8.0	40.00
	1	3.0	15.00
	>2	9.0	45.00
Booking Status	Booked	6.0	30.00
	Non booked	14.0	70.00

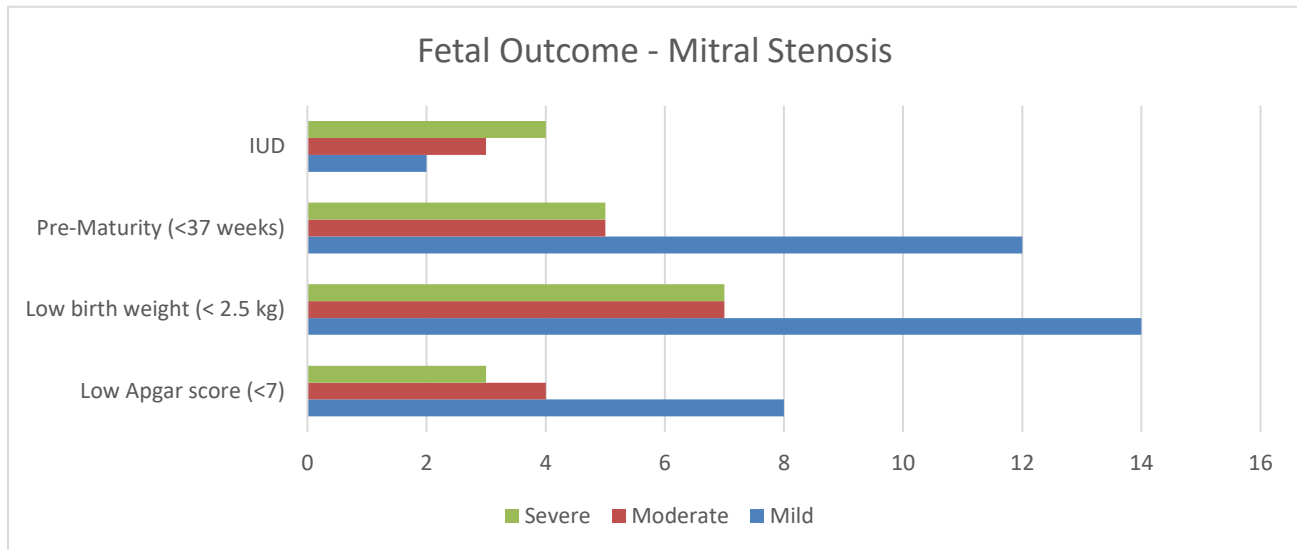


Females with mild MS found with premature neonate in 54.50% (n: 12) patients, Apgar score less than 7 in 53.30% (n: 8) patients & 50.0% (n: 14) neonates

found with low weight at the time of birth. The rate of intrauterine mortality was high in the patients with severe nature MS as mentioned in Table-4.

Table-V: Fetal Outcome with Respect to Mitral Stenosis n=101

Mitral Stenosis	Low Apgar score (<7)	Low birth weight (< 2.5 kg)	Pre-Maturity (<37 weeks)	IUD
Mild	8.0 (53.30%)	14.0 (50.0%)	12.0 (54.50%)	2.0
Moderate	4.0 (26.70%)	7.0 (25.0%)	5.0 (22.70%)	3.0 (33.30%)
Severe	3.0 (20.0%)	7.0 (25.0%)	5.0 (22.70%)	4.0



DISCUSSION:

It is a difficult task of professionals to control the valvar diseases of heart in the period of pregnancy. Heart diseases complicate 1% to 3.0% pregnancies with congenital abnormalities in 70.0% to 80.0% patients [2]. MS is very frequently secondary to rheumatic fever [11]. The fetal mortality is not much high in patients with NYHA class-1 & 2, but if there is association with pulmonary hypertension, danger of abortions, retardation in intrauterine development, delivery before term and early death of neonate was much high [5]. Elaborate evaluation of the patient through whole pregnancy period may cause early identification of diseases of heart [6]. The pregnancy in females with valvar MS has association with marked rise in the rate of maternal morbidity [12]. The high rate of morbidity as well as maternal mortality is because of incapability to handle with physiological alterations of pregnancy, depression due to labor & hemodynamic alterations during pregnancy period [13].

The early identification and proper management with multi-disciplinary procedure, it provides victorious outcome for both child and mother in most of patients [14]. The severity of the complications of heart are easily identifiable with the utilization of the echocardiography in the duration of pregnancy period [15]. The percentages of delivery modes in this research work with amount of patients are very much in accordance with the research work of Avila [16]. Hameed in his research work [17] displayed delivery mode was vaginal in 92.0% (n: 61) out of sixty-six patients with valvar disease of heart. Bonow [18] in his research work displayed delivery mode was vaginal in 78.10% (n: 196) out of two hundred and

fifty-one patients & other patients underwent cesarean section. There were 2 maternal mortalities in this research work as comparable with the research work of Wasim T [19] who displayed a maternal mortality of 3.80%. Sawhney in his research work [20] displayed that there were 252 live births out of two hundred and fifty-four and 2 were stillbirths. Ashwani [21] in his research work displayed 51.30% occurrence of MS. The vitality of the diagnosis before pregnancy, counseling & contraception are very important for proper management in planning pregnancies in patients with heart complications [22].

CONCLUSION:

The diseases of heart have an association with the occurrence of high rate of morbidity, there should be a careful management in the health care institutes with tertiary care to get the best fetal-maternal outcome.

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