“Maternal and fetal outcomes among pregnant women with heart disease – a prospective study”

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ABBREVIATIONS

APGAR - Appearance, Pulse, Grimace, Activity, Respiration

ASD – Atrial septal defect

BMV – balloon mitral valvotomy

CCB - Calcium channel blocker

CHD – Congenital heart disease

CO – Cardiac output

CoA – Coarctation of aorta

CT – Computed tomography

DVT – Deep vein thrombosis

FSB – Fresh still birth

GDM – Gestational diabetes mellitus

HELLP - Hemolysis, Low platelet, elevated Liver enzymes

HR – Heart rate

HTN - Hypertension

ICU – Intensive care unit

IUD – Intrauterine death

IUGR – Intra uterine growth restriction

JNMC - Jawaharlal Nehru Medical College

KAHER - KLE Academy of Higher Education and Research center

KLE's - Karnataka Lingayat Educational Society

LSCS- Lower Segment Caesarean Section

LVEF – Left ventricular ejection fraction

MR – Mitral regurgitation

MS – Mitral stenosis

MSB – Macerated still birth

MVP – Mitral valve prolapse

NHLBI – National heart, lung, and blood institute

NICU- Neonatal Intensive Care Unit

NIH – National institute of health

NYHA – New York heart association

PDA – Patent ductus areriosus

PE – Pre eclampsia

PHT – Pulmonary hypertension

PPCM – Peripartum cardiomyopathy

RHD – Rheumatic heart disease

SVR – Systemic vascular resistance

TOF – Tetrology of fallot

VSD – Ventricular septal defect

ABSTRACT

Background - Heart diseases in pregnancy have a frequency ranging from 0.9 - 3.7 %. Cardiac disease is an important cause of maternal mortality and morbidity both in antepartum and postpartum period.

Hence this study is undertaken in an attempt to scientifically observe the maternal and fetal outcomes among pregnant women with heart diseases.

Materials and methods -The study conducted was a hospital based prospective observational study involving consecutive 130 pregnant patients with cardiac conditions in a tertiary health care medical college hospital in Belgaum, Karnataka, India. The study was conducted from January 2019 to June 2020.

Results - Mean age group of our study population was 24.93±3.95 years.75 multigravida and 55 primigravidae were included. 88 patients belonged to acquired cardiac lesion group and 42 in congenital group. Anaemia and hypothyroidism constituted most common medical risk factors in the study group with 14 patients in each. Previous LSCS was seen in 16 (12.3%) patients in our study, 12 (9.2%) patients had gestational hypertension. 73.84% (n=96) belonged to NYHA grade I. 17.69% (n=23) showed NYHA grade II breathlessness, 1.53% (n=2) belonged to NYHA III and 6.9% (n=9) patients were grade IV NYHA. Mitral stenosis (MS) was the most common clinically significant lesion in the acquired cardiac disease group. Of the total 130 cases of cardiac lesions in pregnancy, 36 cases had undergone cardiac surgery prior to pregnancy, 13 (36.11%) of the 36 cases who had undergone cardiac surgery prior to pregnancy had a normal vaginal delivery (OR surgery v/s no intervention=2.4). 13 of the multigravida fetuses ended with IUGR v/s the 5

primigravida fetuses (OR= 2.09). 24 cases in acquired heart diseases group had unfavourable maternal outcomes v/s 5 in congenital heart diseases group (OR= 2.34; p=0.08). Gestational age at delivery was >37 weeks in majority of the patients (70.76%) with a mean birth weight of 2.47±0.57kg. Acquired heart diseases showed a slightly greater odds (OR= 1.24) of developing unfavourable fetal outcomes like IUGR, IUD and oligomnios. Unfavourable outcomes in the neonates like MSB and FSB had significantly higher odds in the acquired heart diseases group (OR= 4.68).

Conclusion - Incidence of heart disease in pregnancy at KLEH – 1.8%. The incidence of Rheumatic heart disease (RHD) among all cardiac disease is approximately 61.5%.Mitral valve is affected most commonly in cases of RHD. Surgically corrected cardiac cases had a better pregnancy outcome. All the multivalvular diseases put together constituted the majority of the cases, while mitral stenosis was the single most common, clinically significant rheumatic heart lesion associated with pregnancy. The odds of a normal vaginal delivery occurring in a pregnant patient who was managed both by surgical and medical treatment for their cardiac condition was four times more than that compared to the no intervention group.

We also found in our study that IUGR occurred two times more commonly in multigravida than in primigravida. The patients with acquired heart diseases showed double the odds of developing maternal unfavourable outcomes than the patients with congenital heart diseases. Congenital heart disease group showed a slightly higher odds of developing postnatal unfavourable outcomes than the acquired heart diseases group.

Close surveillance and multidisiplinary approach during pregnancy in cardiac disease leads to a successful pregnancy outcome.

Keywords- Cardiac disease, pregnancy, maternal outcomes, fetal outcomes, medical risk factors, obstetric risk factors

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INTRODUCTION

Cardiac manifestations are an important reason for morbidity and deaths in antepartum as well as postpartum period. Prevalence of diseases of the heart vary around 0.3 to 3.5 % in pregnancies.[1]

In a normal pregnancy scenario- Cardiac-output (CO), blood-volume and the heart-rate (HR) noticeably increase. Systemic vascular resistance is also less during pregnancy but at the time of delivery, it will show a dramatic rise. Also, delivery on its own results in a sudden raise of venous return.[2] Cardiac output increases by 30 to 50% close to term.[3]

The events of pregnancy followed by delivery need profound adjustment of cardiovascular unit to surmount the raised haemodynamic necessities. In view of the type, intricacies of maternal disease of the heart and also the underlying haemodynamic scenarios, the above mentioned normal adaptive cardiovascular responses to the elevated demands in the pregnancy overall, labour and its events, and thepuerperium can be prejudiced in multiple adverse ways.[4] If a maternal cardiac condition is evident, the physiologic hemodynamic variations that occur in pregnancy may also result in decompensation- leading to death of mother or fetus, in the worst case scenario.[5]

Cardiac diseases in pregnancy is broadly divided into two categories- the congenital and the acquired. The acquired cardiac diseases include (RHD) Rheumatic Heart Disease, cardiomyopathies and also ischemic cardiac disease. In developing countries, RHD is the commonest type. Cardiomyopathies and (CHD) congenital heart diseases seem to be more common in developed countries.[1]

The incidence of RHD among all cardiac disease is approximately 55.7%.[6] The situation of RHD is different in India compared to the west. In India, 40 to 50% of the

cardiac presentations in pregnancy are incriminated to RHD.[7] Many women show RHD for a primal time with their pregnancy. The mitral valve is found to be affected the most in RHD. As we are aware of the fact that not all the medications prescribed for the women with RHD are safe during pregnancy. A constant scrutiny and dose adjustment of medications is always necessary.[6] Augmenting cardiac presentations during a pregnancy may warrant an urgent surgical treatment during pregnancy.[7] Women with severe mitral stenosis (MS) have significant morbidity during pregnancy.[6]

Cardiomyopathies, when recognized, are of three main types – the dilated (including peripartum cardiomyopathy), restrictive and hypertrophic variety.[1] These, when seen, pose an equally grave outcome as other heart diseases of pregnancy. The advancement in the obstetric, cardio, neonatal and ICU cares in the recent decade has shown a glimmer of hope. The ratio of RHD to CHD is thus decreasing.

Peripartum cardiomyopathy (PPCM), most commonly present post-partum in women without anyof the structural abnormalities in the heart. Andthis, again makes it challenging for the treatment of pregnant women with cardiovascular disease, needing a close collective intervention of various medical faculties put together.[3]

If a woman has CHD, several researchers have observed that the children born to such women have almost 3 percent incidence of developing CHD themselves. For example, in women with Marfan's syndrome with an autosomal dominant single gene inheritance the chances of inheritance is around 50%. Even in patients with same condition, there is a wide variation in the pathophysiological presentation. Furthermore, only little standardised data is available for treatment of such patients.[2] Anaemia is one of the major predisposing factor in developing countries that may eventually terminatein acardiac failure itself, also, further aggravates the situation in

mother with cardiac disease.[8]Pre-eclampsia and other obstetric complications say,hypertensive disorders of pregnancy, multiple pregnancies drastically elevate the haemodynamic work load on the pregnant heart and thus, in vulnerable population, raise the risk of occurrence of cardiovascular complications.[4]

A staggering 20.5% of maternal deaths are because of cardiac problems.[8]A much deserved attention has not been given to most of the cardiovascular presentations during pregnancy than that is given for hypertension or eclampsia.[3]Hence this study is undertaken in an attempt to scientifically observe both the maternal as well as the foetal outcomes amongst the pregnant women of our study sample with cardiacfeautres. Thus, also trying to fill the data void that is present in this regard.

AIMS AND OBJECTIVES

Objective of the study is to know the maternal and fetal outcomes among pregnant women with heart disease.

REVIEW OF LITERATURE

An extensive, thorough review of literature was conducted. Research articles, original dissertations and books were referred. Digital databases like Google scholar, Pubmed, ebsco were also utilized to acquire articles and references of the published works.

Since the time Hamilton and Thompson presented the pioneer paper on the cardiac presentations that pose a challenge to pregnancy between 1921 and 1938 and the landmark Indian conducted in mid 1950s, there have been myriad studies carried out nationally as well as internationally. These researches have portrayed an incidence of around 0.2 to 0.97% for the cardiac lesions/diseases affecting pregnancies.[9]

Pregnancy naturally is a hypervolemic state. If there is a superimposing cardiac disease along with pregnancy, the clinical scenario changes drastically.

Physiological hemodynamic changes in pregnancy- Since the most important study conducted by Clark et al., in 1989, the hemodynamic changes in pregnancy have been exclusively and extensively observed leading to the better understanding of pregnancy as a whole. In this study, cardiac catheterisation was done for primigravidae (n=10) inside the right compartment of their hearts. It was done once around the late part of third trimester and the second time around eleventh till the thirteenth week postpartum. It paved the cornerstone for all future studies which involved physiological hemodynamics of the late antenatal pregnancy.[10] Echocardiography was chosen to ascertain the hemodynamic variations in pregnant women throughout pregnancy and the time after- by Katz and associates.[11]

Riccarda Del Bene et al., reported in 2001, in their study conducted on the ramifications of active postural changes on the hemodynamics in pregnancy. All the variables were observed and noted in their study population of normal pregnant women. This was done at stipulated intervals from the diagnosis of conception till 6 months postpartum in both supine sleeping and standing positions.[12]

PARAMETER	MODIFICATION	MAGNITUDE	PEAK	REFERENCE
Oxygen consumption (VO2)	↑	+20% +40% to 60%	Term	Gemzell,1957 Permoll,1975
Oxygen delivery	↔ ↑	700- 1400ml/min	Term	Hankins,1996
Blood volume plasma volume	↑↑	+45% to 50%	32 weeks	McLennon,1948
Red cells	↑	+25% TO 32%	30-32 weeks	Jepson,1968 Letsky,1995
Total body water	↑	+6 – 8 ltrs	Term	Scitchilk,1967 Lindheimer1973
Resistance changes Systemic circulation	↓	-2%	16-24weeks	Bader,1955
Pulmonary circulation	↓	-34%	34 weeks	Kitabatake,1983 Clark,1989
Blood pressure (SVR & CO) Systolic	↓	-9%	25 weeks	Wilson,1980
Diastolic	↓	Slightly more on diastolic		
Myocardial contractility Chronotropism (HR)	↑	+20% to +30%	Term	Wilson,1980
Inotropism (SV)	↑	+11% to +32%	Term	Mabie,1994 Robson,1989
Cardiac output (HR×SV)	↑	+30% to +50%	Term	Gemsell,1957 Hendricks,1958 Ucland,1969 Robson,1989 Van Oppen,1996
Uteroplacental circulation	↑	+>100%	Term	Metcalfe,1955 Assail,1960

Cardiac disease in pregnancy

Classification-

The foremost classification with the functional capacity in purview was put forth in 1928 from the "New York Heart Association" (NYHA). Since then there have been a dozen modifications.

Classification of the functional capacity recommended by the NYHA currently is based on The Criteria Committee of the NYHA.[13] Accordingly as below,

Class I: Patients with cardiac disease, but without resulting limitation of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnoea, or anginal pain.

Class II: Patients with cardiac disease resulting in slight limitation of physical activity. They are comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnoea, or anginal pain. They are comfortable at rest. Less than ordinary activity causes fatigue, palpitation, dyspnoea, or anginal pain.

Class III: Patients with marked limitation of physical activity.

Class IV: Patients with cardiac disease resulting in inability to carry on any physical activity without discomfort. Symptoms of heart failure or of the anginal syndrome may be present even at rest. If any physical activity is undertaken, discomfort is increased.

Diagnosis of the cardiac diseases in pregnancy-

The normal physiologic hemodynamic changes adds on over an existing/occurring heart disease and turns the process of diagnosis more challenging in pregnancies. Also, symptoms and their clinical presentation of these normal structural and physiologic changes in the cardia during pregnancy may themselves falsely portray a heart disease. In some other scenarios, these variations tend to mask

the underlying cardiac adverse picture. In 1986, MetCalfe et al., put forth some important indicators those according to them were important clinically to point out cardiac complaints in pregnancies. Elkayamet al., outlined similar indicators from their research.[14]

Apart from basic blood work, with recent advances in diagnostics, a new spectrum of research and their effects on pregnancy and diagnosis were plotted. A few recent studies by Ntusi and associates as well as Keser et al., have correlated the safe doses of radiation and hence the diagnostic imaging modalities in a pregnant woman. According to them, a pregnant woman with cardio-vascular lesion/condition often needs radio imaging measures during pregnancy for the diagnostic confirmation of their heart conditions. A cumulative dose ionising radiation of 5 rad is the accepted maximum for the foetuses during pregnancies. Over exposure to the radiations may cause teratogenesis, mutations and malignancy of the childhood. Also, none of the single imaging studies we use approach this danger dose of 5 rad. The following diagnostic imaging procedures can be utilized in pregnant cases- echocardiography, chest radiography, fluoroscopy, cardiovascular computed tomography (CT), invasive angiography, nuclear techniques, CT-pulmonary angiography and cardiovascular MRI.[15,16]

Figure 1- 2D echo showing Left Ventricular Dilatation

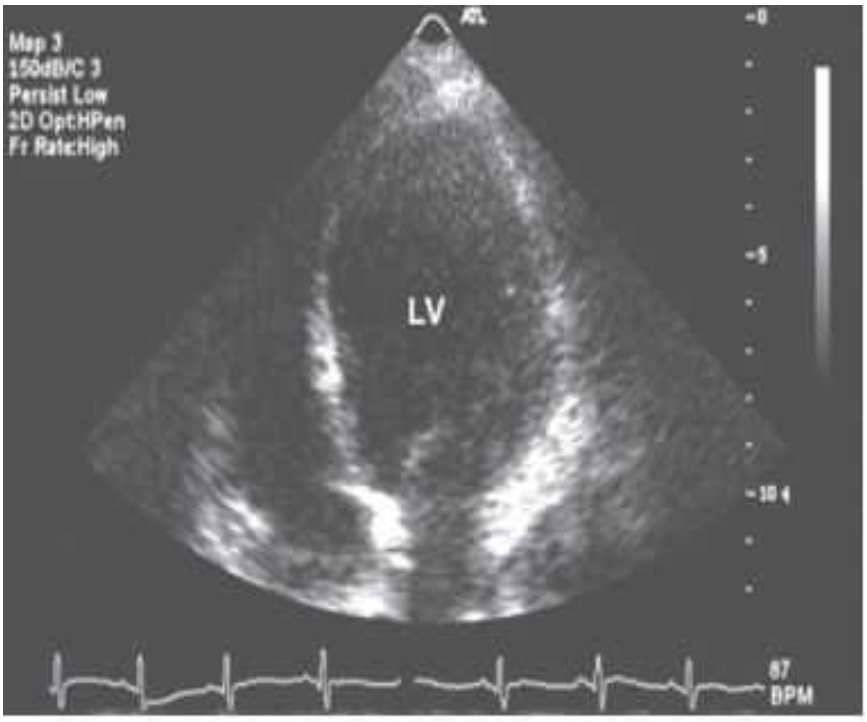
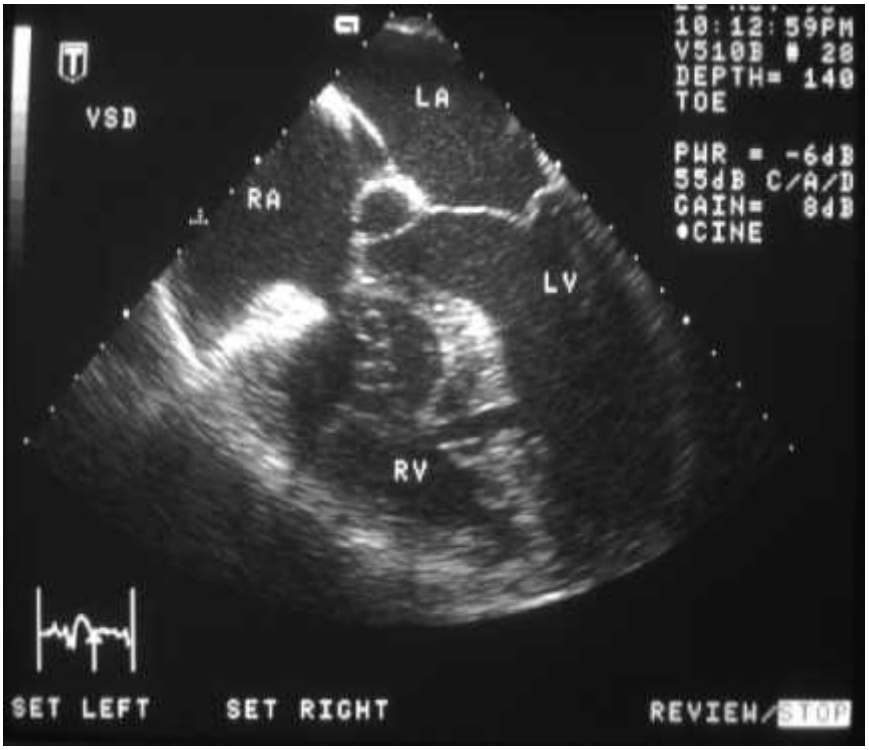


Figure 2- Adult congenital heart disease with VSD



PRE-CONCEPTIONAL COUNSELLING-

The "American College of Obstetricians and Gynaecologists" put forth a three-level classification in pregnancies in accordance to their mortality risks. This has helped since then to counsel a mother regarding the heart disease and the continuation of pregnancy.[17,18]

GROUP	RISK	MORTALITY
GROUP 1	MINIMAL RISK - Atrial septal defect (ASD) Ventricular septal defect (VSD) Patent ductusarteriosus (PDA) Pulmonary or Tricuspid valve disease Tetralogy of Fallot (TOF) corrected Bioprosthetic valve and NYHA class I & II Mitral Stenosis (MS)	0.1%
GROUP 2A	MODERATE RISK- Mitral stenosis NYHA class III & IV Aortic stenosis Coarctation of aorta without valvular involvement Tetralogy of Fallot uncorrected Previous myocardial infarction Marfan's syndrome with normal aorta	5-15%
GROUP 2B	Mitral stenosis with atrial fibrillation Artificial valve	
GROUP 3	MAJOR RISK- Pulmonary hypertension Coarctation of aorta with valvular involvement Marfan's syndrome with aortic involvement Eisenmenger's syndrome Peripartum cardiomyopathy	25-50%

RHEUMATIC HEART DISEASE (RHD)

Among the literatures considered for our study,

A retrospective study from Banaras, India, with RHD cases showed that the majority of pregnant mothers had stenosis of the Mitral Valve. Rest of the patients had multivalve disease. Progression of two patients from the less severe upper NYHA classes to the more severe lower classes was noted. The study highlighted a dozen preterm deliveries with no feto-maternal mortalities and interventricular bleeds in four of the fetuses.[6]

An observation by Desai et al., (2000) in pregnancies with MS found the appearance of symptoms to be only seen after the progression of orifice narrowing to less than 2.5 cm square area.[19]

In a prospective study done by Sudha R. et al., for a duration of one and a half years, 90 pregnant patients with cardiac disease were studied. RHD was the major cardiac disease encountered. The study also showed that most of the NYHA III and IV patients had preterm delivery.[20]

Following MS and MR, AS is the next in line to be seen in regular clinical practice. The clinical picture in AS are a result of a "fixed cardiac output" demonstrated in such cases. A few other noteworthy resultants in pregnancies due to the physical compression of the preload compartment of the CVS by the distending gravid uterus further affects the output. 1993 research by Lao et al., reported a collective seven percent mortality amongst patients with AS.[21]

Siu and co-workers put out a prospective, large sample sized study that concluded that pregnancy in a woman with heart disease resulted in increased maternal cardiac and neonatal complications. They also have predicted cardiac risk using risk index.[22]

A Nigerian retrospective study conducted with 46 cardiac cases showed that the majority of the cases were primigravida, RHD was the 2nd most common cardiac disease and that the most common complication was congestive heart failure.[23] A 3year long study from Vietnam also concluded the similar findings.[24]

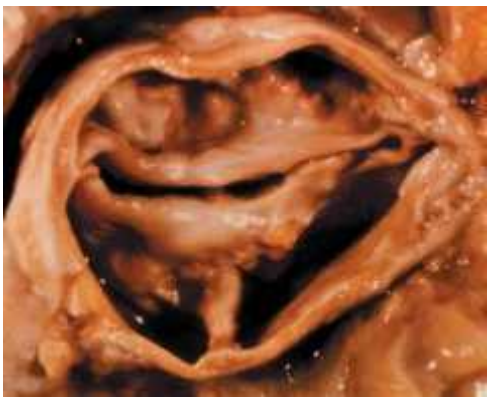
D. Khan and associates, in their 2018 study found that RHD was the 2nd most common heart disease and preterm, instrumental deliveries were mostly seen in cardiac cases.[25]

CONGENITAL HEART DISEASE (CHD)

Not all CHDs lead to morbidity/mortality. It is known that majority of the cases with small septal defects and minimal shunts from the oxygenated compartment to the non-oxygenated have fairly uneventful pregnancies.

Figure 3- a picture of a "normal aortic valve"

Figure 4- a picture of a "bicuspid aortic valve"

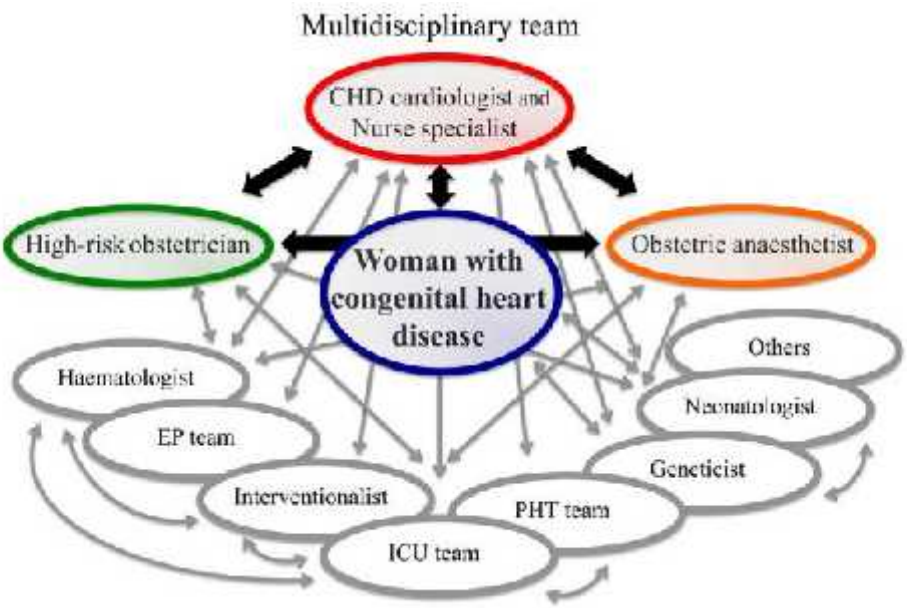


Congenital heart defects/residual hemodynamic lesions with very high maternal risk (High risk of maternal mortality, consensus that pregnancy should be discouraged)
† Severe symptomatic aortic valve stenosis † Severe left atrio-ventricular valve stenosis † Pulmonary arterial hypertension † Systemic ventricular ejection fraction ,30% † Poor functional class (NYHA III and IV) † Marfan's syndrome with ascending aortic diameter .45 mm † Bicuspid aortic valve with ascending aortic diameter .50 mm † Unrepaired severe coarctation
Congenital heart defects/residual haemodynamic lesions with high maternal risk (High risk of morbidity or increased risk of maternal mortality, consensus that very careful pre-pregnancy assessment and counselling is required)
† Mechanical heart valve prosthesis † Systemic right ventricle (transposition of the great arteries after atrial switch operations or congenitally corrected transposition of the great arteries) † Fontan palliation for univentricular hearts † Unrepaired or palliated cyanotic heart conditions † Marfan's syndrome with ascending aortic diameter ,40 mm † Severe systemic atrio-ventricular valve regurgitation † Asymptomatic left ventricular outflow tract stenosis with peak gradient .50 mmHg or aortic valve area ,1.5 cm2 † Left atrio-ventricular valve stenosis with valve area opening ,2.0 cm2 † Systemic ventricular ejection fraction 30–40%

According to Perloff, more than two thirds of the adults who have had significant CHDs have already been intervened by some or the other surgical procedure in their childhood.[26,27]

The same study from Europe also suggests a multidisciplinary approach of varied medical faculties for managing a pregnancy in a woman with (CHD).[4]M. Greutmann et al., and other similar studies have reported and listed the high-risk factors because of congenital heart diseases in pregnancy.[4,28–30]

Figure 5- Multidisciplinary team approach



Another recent study from north eastern India showed a prevalence of 2.32% for heart diseases in pregnancy. CHD was the major heart disease incriminated and it was almost half of all the cardiac cases.[25]

According to Hameed and associates, Valvular Heart Diseases of any etiology, congenital or acquired lead to higher incidence of congestive heart failure during pregnancy.[31]

An Indian study from Uttarakhand showed that CHD were the second most common heart disease next to RHD.[23]

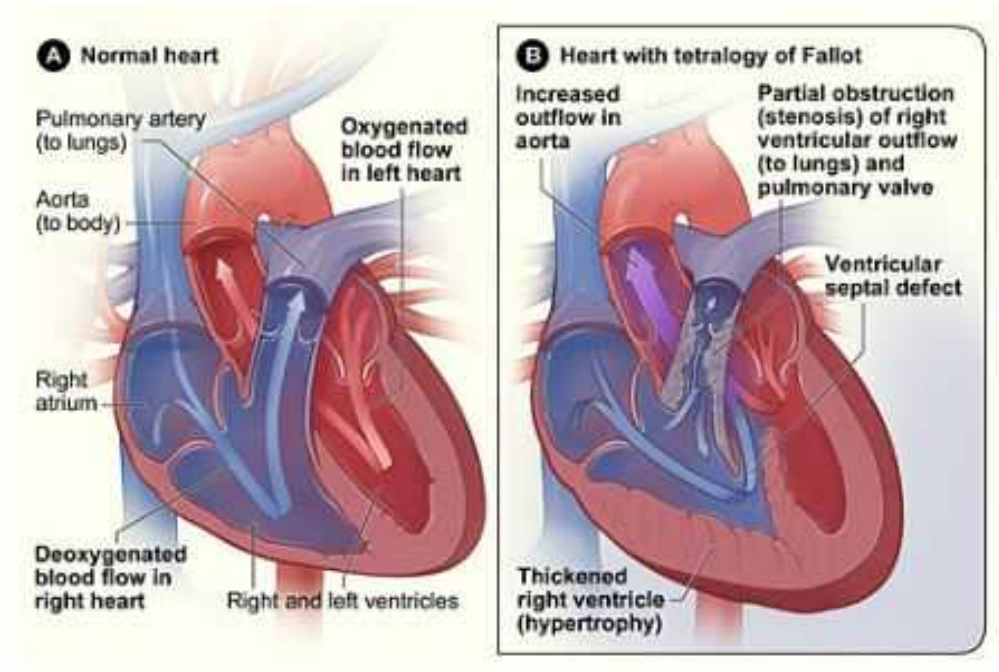
Ventricular septal defects were the most common defects in CHD followed by Atrial Septal Defects (ASD) according to a study by T. Manh et al., in 2019. TOF was seen in only around one percent of the cardiac patients with pregnancy.[24]

ASD can also be seen in very rare genetic conditions as in Ellis-van Creveld syndrome (six–fingered dwarfism). The syndrome is an outcome of mutation of set of genes named the EVC.[32,33]

A 1999 study by Zuber et al., with a degree of selection bias (as the patients taken up already had good systolic capacity of the ventricular compartment), reported agreeable outcomes with nineteen of their pregnancies with Fallots tetralogy.[34,35]

Veldtman and associates in their findings stated that the population which undertook surgeries for TOF repair before planning pregnancy had more favourable pregnancy outcomes.[36]

Figure 6- Pathogenesis of TOF



MISCELLANEOUS HEART DISEASES

PERIPARTUM CARDIOMYOPATHY

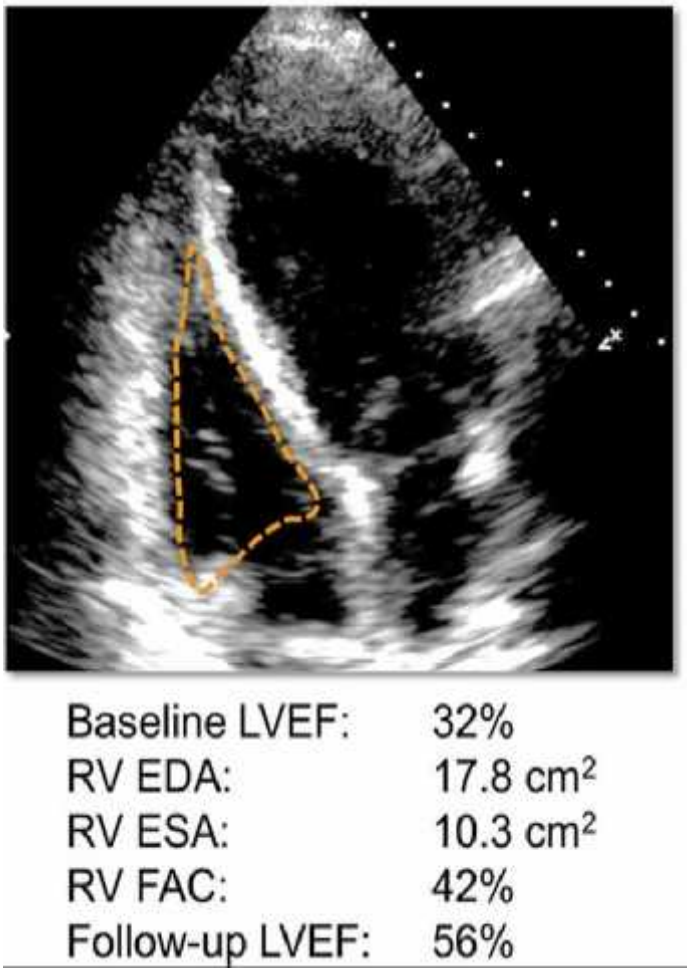
"National Heart, Lung, and Blood Institute (NHLBI)" and "National Institutes of Health (NIH)", in their joint meeting in 1997, expanded the previously known criteria and added echocardiography (Trans-Thoracic Echocardiography) criteria for "left ventricular systolic dysfunction (left ventricular ejection fraction, LVEF <45%) and fractional shortening of <30%, or both".[3839]

In pregnancies which already had diabetes mellitus (DM) and gestational DM, the PPCM incidence was drastically high (1 per 613 birth events and 1 per 1751 birth events respectively). In pregnant mothers with no diabetic risk factor the incidence is around 1 per 2550 birth events.[40]

The PPCM acquisition risk has been found to notably increases in pregnant women with Hypertensive Disorders of Pregnancy (5 to 21 times more compared to that of women with normal blood pressure). Treatment includes bedrest, sodium restriction, aggressive diuresis, beta- blockade and afterload reduction (CCBs and hydralazine while pregnant and ACE inhibitors post-partum).[41]

The cases of PPCM have been reported to develop deep vein thrombosis (DVT) and hence anticoagulants should be used accordingly with the above treatment options.[42]

Figure 7- 2D ECHO of PPCM



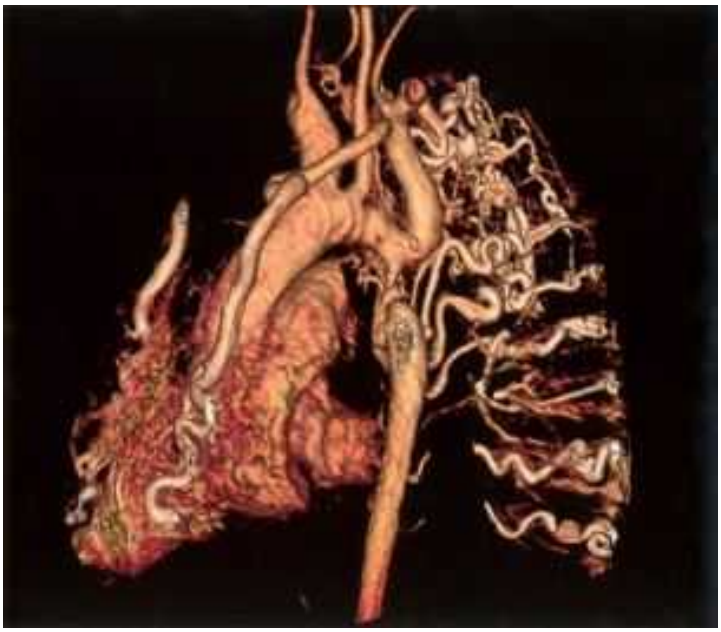
INFECTIVE ENDOCARDITIS

Infective endocarditis reportedly has low incidence during a pregnancy.[43,44] However, there is significantly high maternal mortality (33%). Most of these deaths are related to a heart failure or aa embolic accident.[45] The foetal mortality rate can reach high as much as 29%. If Infective endocarditis develops in pregnancy, it can pose obstacles in management like the difficulty in choice of pregnancy safe antibiotic treatment and also in the choice of a correct duration for delivery as well as heart surgeries.[46]

DISEASES OF AORTA

Coarctation of aorta and Marfan's syndrome- The two main conditions involving aorta that concern most of the complicated pregnancies. These have been linked with higher chances of occurrence of dissection of aorta. Also, in Ehler – Danlos, dissection in aorta and its rupture was notably more. Late pregnancies have been observed to be the cul de sacs for more than fifty percent of the aortic presentations in pregnancies of women who are below forty years of age.[47,48]

Figure 8- Magnetic resonance imaging scan of a 34 years-old with severe coarctation of aorta (near interruption), with multiple and severe coarctation of aorta (near interruption), with multiple and very large collateral vessels.



PULMONARY HYPERTENSION (PHT)

In PHT, the maternal mortality rate is around 30%. Also, in many of the patients who show PHT, mortality with mothers become significant if the PHT presents over an underlying cardio-pulmonary lesion or in recurrence to any conditions like drug abuse or pulmonary emboli.[49]

PHT along with cor-pulmonale hamper the prognosis in patients already suffering from cystic fibrosis. This leads to an increased number of maternal deaths as these cases tend to acquire a decreased preload thus further affecting the pregnancy, delivery.[50]

MITRAL VALVE PROLAPSE (MVP)

MVP is one amongst the more common conditions which is seen in 4 to 5% of the population. It can be associated with a lot of other medical conditions and can also be idiopathic. The underlying process of myxomatous degeneration usually causes mitral valve prolapse. There can be non-myxomatous mitral valve prolapse too. Mitral valve prolapse in most patients show no symptoms. When symptoms do occur, palpitations, chest pain and dyspnoea are the major complaints.[51]

In the absence of other cardiovascular disorders, women with mitral valve prolapse tolerate pregnancy well and are mostly symptomless. But, serious effects of MVP, like infective endocarditis, cerebral ischemic accidents and arrythmias can be seen in pregnancy. Surgical interventions are only necessary in pregnancies which have MVPs progressing towards major devastating outcomes. Conservative management of these patients by using beta blockers must be thoughtfully taken up in view of foetal complications.[52]

MATERIALS AND METHODS

Study setting

The study was conducted in Dept of Obstetrics and Gynaecology at KLE'S Dr. Prabhakar Kore charitable hospital and medical research centre attached to Jawaharlal Nehru Medical College, Belagavi.

Study design:

Prospective observational study

Study duration –

Study was conducted for a duration of one year six months.

Study period –

1st January 2019 to 30th June 2020

Source of data and materials

All women who were diagnosed with heart disease previously or during pregnancy were deemed suitable for the study.

Those enrolled, were followed up until delivery for any complications during pregnancy and the outcomes were evaluated. Any maternal or foetal complications-thus encountered, were noted through questionnaire and investigations.

Method of collection of data

The study conducted was a prospective natured observational study and was hospital based. It was taken up in a well-established deemed tertiary healthcare medical college hospital- KLE's DR. Prabhakar Kore Hospital, Belgaum, Karnataka, India. Thisresearch started from January 2019 and was completed by June 2020.All

pregnant women diagnosed with heart disease and admitted at labour room, cardiology ward and ICCU of the hospital were considered.

Sampling

Size of the sample was found out assuming proportion of preterm delivery as 12.8% as per the study by KiranPandey **e**t al.,[53] The other parameters considered for the calculation of our study sample size were 6% absolute precision and 95% confidence level. An infinite population correction was applied.

The very exact proportion of individuals that form a whole population is difficult to calculate as the size will be very high. In such cases we need to find the proportion within a stipulated population and then further project the finding to a larger population

The following formula was hence used to calculate the size of the sample.

$$n = \frac{Z^2 P(1-P)}{d^2}$$

Where

n denotes the Sample size

Z is the Z statistic for a level of confidence,

P is the expected prevalence of proportion

(If the expected prevalence is 12.8%, then P= 0.128), and

d is precision (If the precision is 5%, then d=0.06).

The calculated number of subjects as per the above-mentioned calculation was 120. To account for a non-participation rate of about 5%, it was decided to sample about 130 subjects in to the study.

Sampling procedure

Consecutive 130 pregnant women with heart disease admitted in the Department of OBG in our hospital for delivery were considered.

Inclusion criteria

All pregnant women more than 20 weeks period of gestation admitted with known or newly diagnosed cardiac disease (congenital or acquired) whether symptomatic or asymptomatic.

Exclusion criteria

- All pregnant women with cardiac disease admitted for termination of pregnancy
- Patients having incomplete medical records

Ethical clearance:

The study was approved by ethical and research committe, KAHER's Jawaharlal Nehru Medical College, Belagavi- prior to its commencement. (Anexure-3)

Informed Consent:

All participants fulfilling the selection criteria were explained regarding the purpose of the study in their own vernacular language and written informed consent was obtained prior to enrolment in the study.

METHODOLOGY:

The institutional Scientific and Ethical committee approval was taken. A well informed consent was acquiredfrom all the study participants and they were enrolled for the study. A pre-tabulated questionnaire to gather the essential information regarding heart disease in pregnancy was used.

Data was collected based on history (NYHA classification, edema, dyspnoea, syncope, any cardiac intervention done earlier, any oral cardiac medications, co-morbid conditions etc.,), clinical examination (general physical examination, chest auscultation), and investigations (ECG, Echocardiography). In accordance to the presenting etiology, cardiac conditions were scrutinised into 1. congenital2. acquiredcardiac diseases.

Enrolled pregnant mothers were considered to have increased risk if atleast one of the following risk conditions were present: LV ejection fraction <50%, NYHA class > II or cyanosis, left heart obstruction; women without these conditions were classified into low risk group.

Patients were followed up from the time of admission and their mode of delivery (normal labor, cesarean section), outcomes and complications (congestive heart failure, atrial fibrillation, infective endocarditis, venous thromboembolism, deterioration of NYHA class, obstetric complications, new onset cardiac complications, maternal death) were analysed statistically.

The following foetal outcomes were considered: perinatal mortality, IUGR, prematurity, birth weight, NICU admission, intra uterine fetal demise, inheritance of disease in the fetus.

STATISTICAL ANALYSIS

Descriptive analysis was used for the respective variables. The correlation between the input variables and category wise corresponding outcomes was compared by tabulating the data and the comparison of the acquired percentages. Binary, univariate regression analysis was used to check the statistical correlation between the input variables and outcomes. Unadjusted Odds ratio with 95% CI was projected. Variables with statistical significance in the above-mentioned univariate analysis were used to compute multivariate regression analysis. “Chi-square test” was taken up to show if the presenting variables were statistically significant.

P value lower than 0.05 was believedto be ‘statistically significant’. IBM SPSS version 22, Data analysis function of Microsoft Excel was utilized for statistical workup.

DISCUSSION

The mean age in our study was found to be around 24.93±3.95 years. In comparison, a 2018 study by D. Khan et al., showed a mean age of 27.58±5 years, Siu and associates found the mean age to be 28±6 years. The mean age in a study by Desai et al., was around 27 years. A Bangladeshi study from 2016 showed it to be 26.08 ± 3.96 years. A similar study in the European population showed it to be 28.1±5.7 years.[19,22,25,54,55]The study population seemed relatively younger in our study with a smaller standard deviation.

Pandey and his associates in their study from 2016 found that 61.5% were primigravida.[53]Nahreen Akhtar from Dhaka, in their similar study found that a majority of their study population (38.89%) was primigravida.[54]Abbasi et al., showed that 63% of the study population was primigravida.[8]30% of the population from a study from Durban were primigravida whereas, 7 out of the 16 people considered for a similar study in Italy were primigravida.[12,19] A 2015 Nainital study showed that 71.5% were primigravida. In comparison to these, our study showed that 55 subjects (42.30%) were primigravida. While 75(57.69%) of them were multigravida.

Associated risk factors in pregnancy considered in the study-

Previous LSCS was the most commonly seen obstetric risk factor and was seen in 16 (12.3%) patients in the study group. A similar Indian study as of ours conducted in 2018 showed that 14.8 percent of the study population had previous LSCS as an obstetric risk factor.[56] Another consistent study by K. Pandey et al., showed 11.1 percent of its study population having undergone previous LSCS.[53] Also, a related study from AIIMS, New Delhi, India showed that 3.38% of their study population underwent previous LSCS.[7]

Gestational hypertension was the next most common obstetric risk factor associated in our study population which was in 9.2 percent of the study group. Similar findings were seen other studies that we considered for comparison. Siu and his associates found that 4 percent of their study population had gestational hypertension.[22] A similar study from the North Eastern India found that 18.18 percent of the study group had pregnancy induced hypertension.[25]

Anaemia was the most common medical risk factor seen in the study population in our study along with hypothyroidism in 10.7 percent of the population. Malhotra et al., also showed 1.4 percent each of anaemia and hypothyroidism cases in their study.[7] S. Abbasi et al., in their study obtained data that suggested that 47.1% of the study population were anaemic.[8] Another Indian study by Uma Pandey showed that 5.8 percent were severely anaemic.[7] 7.1 percent of the study subjects in Nainital, India were anaemic.[23] Anaemia was seen in one of the two maternal deaths in our study. Konar et al., in their study saw that all the three maternal deaths were associated with anaemia.[5]

Abbasi et al., and Pandey et al., found that hypothyroidism was seen in 5.9 percent and 5.12 percent, respectively. Similarly, a 2018 Indian study showed that 3.64 percent of its study group had hypothyroidism.

Mean birth weight in our study group was found to be 2.47±0.57. A similar study done in Bangladesh showed a mean weight of 2.5± 0.3kg.[54] Another related study from Glasgow showed that the mean birth weight was around 2.36 kgs.[49]Malhotra et al., found in their study that the mean birth weight was 2.56±0.5. All these are very consistent with our findings.

A study from North Eastern India found that a majority of patients were seen to be in Class I and II (69.09%) of the NYHA and 9.09% were found to be NYHA Class III with 21.82% to be in Class IV NYHA. This study also found that all the three mortalities belonged to the NYHA IV group and all of them were found to be severely anaemic.[25] A cross-sectional study by Patil and associates showed that 50% of their study group belonged to NYHA I whereas only 1 of them was categorised into NYHA IV. The cardiac complications were seen predominantly in the NYHA III and IV groups.[56] A retrospective study from Netherlands failed to acquire data as to how much of their study population belonged to individual NYHA groups.[35] Another similar Indian study from the Banaras Hindu University by U. Pandey showed that almost 2/3rd (73 out of 96) subjects were NYHA I while NYHA II, III and IV groups had 19, 1 and 3 patients, respectively.[6]

In the present study that we conducted, we found a similar picture where 73.84% of our study sample of 130 subjects fit into NYHA I, 17.69% into NYHA II, 1.53% NYHA III and 6.9% to NYHA IV group.

One of the 2 patients in the NYHA III group was primigravida with an acquired heart disease who was conservatively managed on beta blockers. Apart from gestational hypertension, she had no other associated risk factors. Also, there was IUGR and oligomnios which made us opt for LSCS. She had worsening of her severe AS post-delivery which warranted an admission to the cardiac ICCU. The baby of this mother was a full-term and had a low birth-weight with no other complications.

The other patient in the NYHA III group was gravida 2 who delivered a preterm baby by spontaneous vaginal delivery. She had CHD (Eisenmengers disease with large VSD) which was newly diagnosed post-delivery on postnatal day one as

she had deterioration of functional class of NYHA (grade I to grade III). She was immediately shifted to cardiac ICCU and was managed conservatively and discharged with baby on same treatment.

NYHA IV had 9 patients in its group. Six out of the 9 patients were equal to or more than 26 years of age and eight of the nine were multigravida. All of them showed to have acquired cardiac conditions with PPCM being the most common in seven out of the nine patients. And two patients were seen with RHD (one being severe MS and other being severe MR). Only one of these RHD patients underwent surgery previous to pregnancy while all the others in this NYHA IV group had been managed conservatively. Medical risk factors were seen in five of the nine in this group. Two had chronic hypertension. Anaemia and hypothyroidism were seen in one patient each in this group while one other patient had both anaemia as well as hypothyroidism. Obstetric risk factors were seen in four of the nine NYHA IV patients. Two of them had previous LSCS, two developed PIH. All of the nine patients required cardiac intensive care admission. Six of them delivered by LSCS while the other three were preterm delivery. Pulmonary edema and oligomnios was seen associated with two of the cases separately which delivered preterm, while two of the LSCS cases separately had oligamnios and IUGR associated with them. One of the cases which was preterm and had oligamnios, encountered IUD leading to MSB- which was one amongst the three infant mortalities seen in the overall study population. The other two mortalities were also seen within NYHA IV group and were FSB. These two FSB cases were associated with corresponding two maternal mortalities too (1.5%). Out of the 6 live births, three of them required NICU stay which was attributed to their low birth weight.

49.09% of the cases from a study from North-Eastern India had most commonly congenital heart diseases associated with pregnancy.[25] But according to a study by Uma Pandey, approximately 55% of the cases under their study purview were rheumatic heart diseases.[6] A similar study from Brazil mentioned that RHD is the commonest cardiac condition found with pregnancy. It also stated that- the countries that were categorised to be high income, unlike Brazil, had CHD as the most common cardiac condition associated with pregnancy.[52]Keser and his associates from Turkey in their study used echocardiography to determine the most common cardiac condition associated with pregnancy and they found that CHD was more common than RHD which was consistent with the findings of the above mentioned Brazilian study about CHD being the commonest cardiac disease in high income countries.[16] This was further fortified by the fact that the study from Dhaka showed 70 percent of its cases to be that of RHD.[54] In the other hand, the study that we conducted showed results consistent with low income countries. 67.69% of the study we conducted were of rheumatic origin while the remaining 32% were of congenital origin.

Amongst the rheumatic heart diseases in pregnancy, mitral valve stenosis has shown to be the most common clinically significant rheumatic heart disease associated with pregnancy.[6–8,19,22,53] T. Manh et al found the MR was the most common finding followed by MS.[24] But, according to a recent study by Anthony and associates, out of the three thousand and odd patients opted for the Recently Published Global Rheumatic Heart Disease Registry (REMEDY) which included patients from hospitals of India, Africa and Yemen, moderate-to-severe multivalvular disease with CHD was the most common cardiac condition associated with pregnancy.[57] This was very much consistent with our study where we found that there was a majority of 26 multivalvular disease cases. While mitral valve stenosis was the second most common

disease overall with 22 cases and the single most common, clinically significant rheumatic heart lesion associated with pregnancy.

VSD was found to be the most common congenital heart disease associated with pregnancy .[16,24,25,55] While some other studies found that ASD was a commoner finding than VSD as a congenital heart disease in pregnancy.[5,23,29]The study we conducted showed that ASD was the commonest CHD associated with pregnancy followed by VSD. Out of the other acquired, non-rheumatic cardiac diseases associated with pregnancy PPCM was seen to be the most common seen in 6.1% of the patients.

The study we conducted showed that ASD closure was the single most common surgical intervention done in the study population in around 10 patients. Also, all the valve repairs (MVR, PVR, AVR) put together constituted to an overall 11 cases. This was consistent with the reports from many Indian and western studies that also showed that ASD repair was the commonest surgery performed.[25,36,53,55]

While all of the studies advocated to aim for vaginal delivery, they also emphasized on appropriately conducting LSCS whenever and wherever maternal cardiac disease warrants its need. Vaginal spontaneous delivery was found to be more commonly occurring delivery in a few of the studies while LSCS was seen to be most common in other studies. Hiralal et al., in their study showed that a majority of 46% of the study population had vaginal delivery.[5] A study from Nainital, India showed that a majority (52.4%) of cases underwent spontaneous normal delivery.[23]Elkayam et al., and Desai & his associates also found similar findings.[14,19]Conversely, some studies from India and the neighbouring regions found that LSCS was the commoner mode of delivery than the Vaginal mode. N. Akthar and associates found that 85.19%

of their study group underwent delivery by LSCS.[54] 36.7% of the study population delivered via LSCS in a study from Kashmir, India, while 35.6% of the same study group delivered by normal vaginal route.[1]

Unlike the studies under review, we tried to compare the mode of cardiac intervention with the mode of delivery. We found that, the odds of a normal vaginal delivery occurring in a pregnant patient who was managed both by surgical and medical treatment for their cardiac condition was four times more than that compared to the non-intervention group. We also found in our study that the odds of LSCS delivery being conducted was two times more in the group that was managed only by cardiac medications compared to the group that required no interventions. This suggests that cardiac surgery and medical management have a positive effect on the good outcome of the presenting pregnancy. None of the other studies were found to do this comparison. Instrumental delivery was seen in 20 percent of the study population which is similar to the results found by Pandey and associates where 17 percent of the population had instrumental delivery.[53] Salam and his associates found that 7.8 percent of their study group had instrumental deliveries.[58]

Another novel comparison we made was the mode of management of cardiac condition and their relative maternal outcomes. We found in our study that a high percentage of the mothers (86.36%) who have had cardiac surgeries prior to pregnancy and also were on medications had more favourable maternal outcomes than those managed only by the medications or only by surgical measures. There was no mortality associated with them. Most of the unfavourable outcomes in the conservatively managed group can be attributed to their need of admission to the ICU because of the underlying cardiac or postpartum complications. The risk of

development of unfavourable outcomes was found to be almost two times more in the group that was managed only by cardiac surgeries compared to the group that was managed both by surgeries and medications. Also, the same risk was nearly four times increased in the group managed only by medications compared to the population managed by both surgeries and medication with high statistical significance. No significant relative risk between solely surgically managed and solely conservatively managed groups for development of unfavourable outcomes was seen.

Maternal outcomes and the foetal outcomes-

In our study, we conducted novel comparisons between certain maternal characteristics with the foetal outcomes. We found that the odds of a multigravida heart patient having IUGR of the foetus is 2 times more than a primigravida. Also, if a pregnant lady was below 18 years old or above 35years, she showed almost two times more odds of developing IUGR than a woman in the age group of 18-35 years. T. Manh et al., in a study from 2019 tried a similar comparative approach and they could not find an increased odds of developing IUGR in multigravida.[24]

Another novel comparison we made was the mode of management of cardiac condition and their relative maternal outcomes. We found in our study that a majority of the mothers (80.55%) who have had cardiac surgeries prior to pregnancy had favourable maternal outcomes. There was no mortality associated with them. Slightly more than fifty percent of the mothers who received only medical conservative management had favourable outcomes. Most of the unfavourable outcomes in this conservatively managed group was the admission to ICU. This can be attributed to the fact that most of the moderate to severe cardiac cases are being managed in an efficient manner conservatively. No significant relative risk between surgically

managed and conservatively managed groups for development of unfavourable outcomes was seen.

Though we have tried to include most of the variables for our study, further study comparing the present study with the study population which failed to receive any sort of intervention for their serious cardiac conditions is necessary.

We also made a statistical comparison of cardiac diseases with the maternal outcomes and outcome of the newborn. The patients with acquired heart diseases showed double the odds of developing maternal unfavourable outcomes than the patients with congenital heart diseases.

Acquired heart diseases showed a slightly greater odds of developing unfavourable foetal outcomes like IUGR, IUD and oligomnios. Unfavourable outcomes in the neonates like MSB and FSB had four times higher odds of occurrence in the acquired heart diseases group. Congenital heart disease group showed a slightly higher odds of developing postnatal unfavourable outcomes than the acquired heart diseases group. This can be attributed to the higher number of birth defects which was seen in the neonates born to the mothers with CHD thus requiring a NICU stay comparatively more than what was required for the acquired heart disease group. We did not acquire any other research articles to compare this globally or locally. Further studies to this regard are hence warranted for better understanding of the cardiac conditions associated with pregnancy.

CONCLUSION

Incidence of heart disease in pregnancy at KLEH – 1.8%.

The incidence of Rheumatic heart disease (RHD) among all cardiac disease is approximately 61.5%.Mitral valve is affected most commonly in cases of RHD. Surgically corrected cardiac cases had a better pregnancy outcome. All the multivalvular diseases put together constituted the majority of the cases, while mitral stenosis was the single most common, clinically significant rheumatic heart lesion associated with pregnancy. The odds of a normal vaginal delivery occurring in a pregnant patient who was managed both by surgical and medical treatment for their cardiac condition was four times more than that compared to the non-intervention group.

We also found in our study that IUGR occurred two times more commonly in multigravida than in primigravida. The patients with acquired heart diseases showed double the odds of developing maternal unfavourable outcomes than the patients with congenital heart diseases. Congenital heart disease group showed a slightly higher odds of developing postnatal unfavourable outcomes than the acquired heart diseases group

With immense improvements in the cardiac pharmacotherapeutics, surgical techniques and anaesthetic capabilities, most of the cardiac conditions warranting surgical interventions are easily managed.

Apart from the known red flags for pregnancies like increased maternal age, uncontrolled medical and obstetric risk factors, cardiac conditions may superimpose on these existing factors increasing the risks for an unfavourable outcome in pregnancy.

This study we conducted supported the fact that maternal risk factors contribute majorly to the pregnancy outcome in cardiac cases with pregnancy. We could also conclude that the surgically corrected cardiac cases had a better pregnancy outcome even though further studies may be required and that the surgeries per say did not contribute much to the feto-maternal morbidity and mortality.

All the multivalvular diseases put together constituted the majority of the cases, while mitral valve stenosis (MS) was the clinically important, single commonest rheumatic heart lesion associated with pregnancy. The odds of a normal vaginal delivery occurring in a pregnant patient who was managed both by surgical and medical treatment for their cardiac condition was four times more than that compared to the non-intervention group.

We also found in this research that IUGR occurred two times more commonly in multigravida than in primigravida.

The patients with acquired heart diseases showed double the odds of developing maternal unfavourable outcomes than the patients with congenital heart diseases. Acquired heart diseases showed a slightly greater odds of developing unfavourable foetal outcomes like IUGR, IUD and oligomnios. Unfavourable outcomes in the neonates like MSB and FSB had four times higher odds of occurrence in the acquired heart diseases group. Congenital heart disease group showed a slightly higher odds of developing postnatal unfavourable outcomes than the acquired heart diseases group.

Appropriate counselling regarding the prognosis before conception and also during present pregnancy is of paramount importance. Multi faculty, timely approach and follow-up with a single team throughout the pregnancy was the cornerstone for a better outcome as observed in our study.

Only a proper follow-up and strict adherence to the universal and institutional protocols help us easily manage the cardiac cases in pregnancies. Vigilant monitoring of the cardiac cases managed conservatively for the deterioration of their cardiac condition is a priority as the pregnancy progresses.

In a low-income country like India socio-economic causes of neglect of cardiac cases in pregnant mothers is another prime factor to watch for.

SUMMARY

The study conducted was a prospective natured observational study and was hospital based. It was taken up in a well-established deemed tertiary healthcare medical college hospital- KLE's DR. Prabhakar Kore Hospital, Belgaum, Karnataka, India. This research started from January 2019 and was completed by around June 2020.

All pregnant women diagnosed with heart disease and admitted at labour room, cardiology ward and ICCU of the hospital were considered.

The primary objective of the present study was to know the maternal and fetal outcomes among pregnant women with heart disease.

Consecutive 130 pregnant women with heart disease admitted in the Department of OBG in our hospital for delivery were considered.All pregnant women more than 20 weeks period of gestation admitted with known or newly diagnosed cardiac disease (congenital or acquired) whether symptomatic or asymptomatic. They were screened with pre-established screening forms, consents were taken and then when they satisfied the study criteria, they were recruited for the study.

Data was collected based on history (NYHA classification, edema, dyspnoea, syncope, any cardiac intervention done earlier, any oral cardiac medications, co-morbid conditions etc.,), clinical examination (general physical examination, chest auscultation), and investigations (ECG, Echocardiography)- in a stipulated patient information collection form. This was further used to pile in a master chart from which statistical analysis was taken up.

The age groups in our study population showed a mean value of 24.93±3.95 years. While, in the 18-35 years group it was found to be 24.49±3.3 years and in the <18 or ≥ 35 years group it was 36±0.81 years.

96 patients of the total 130 study group belonged to NYHA grade I which accounted for 73.84% of the study group. 17.69% (23 patients) showed NYHA grade II breathlessness. Grade III dyspnoea was seen in only 2 patients(1.53%). Grade IV NYHA breathlessness was seen in 9 (6.9%) patients.

Obstetric risk factors - Previous LSCS was seen in 16 (12.3%) patients in our study population. 12 (9.2%) patients had gestational hypertension.Medical risks- Anaemia and hypothyroidism constituted a major number of the risk-factors within the study sample with 14 patients under each group.Chi-square test showed that the values are statistically significant. (p=0.001)

Mitral stenosis (MS) was found to be the most common single valve lesion in the Acquired cardiac disease group and was seen in 22 individuals.Multivalvular lesions were put together and there were 26 cases of the same. Chi-square *goodness of fit*- test applied showed that the occurrence of these numbers wasn't just a random co-incidence but a statistically significant occurrence (p=0.02). Amongst congenital lesions, ASD was seen to be the commonest cardiac presentation in the study in 19 patients.

Of the total 14 cases which needed cardiac surgery (Sx) prior to pregnancy, 21.4% (n=3) underwent normal vaginal delivery while 50% (n=7) had LSCS delivery. 46 cases of the total 130 needed only cardiac medications (Mx) for the management of their heart condition. A majority 65.21% (n=30) of these 46 cases delivered by LSCS when compared to only 45.83% (n=22 out of 48) of the cases in the (NoI) no

intervention group (OR=2.03). A total of 22 cases were managed with both surgery and medications (Sx+Mx). Only 18.75% (n=9) of the NoI group delivered by normal vaginal route while a major number of 45.45% (n=10) of the Sx+Mx group delivered by normal vaginal delivery (OR=4.16; p=0.01).

The odds of a multigravida heart patient having IUGR is 2 times more than a primigravida. Also, if a pregnant lady had an age lesser than 18 years or ≥ 35years, she showed almost two times more odds of developing IUGR than a woman in the age group of 18-35 years.A majority of 97.9% (n=47) of the NoI group had favourable outcomes compared to 85.71% (n=12) of the Sx group and 58.7% (n=26) of the Mx group. Only 4 cases of the Sx+Mx group had unfavourable maternal outcomes (18.18%) (RR=1.70; p=0.03). 56.52% (n=26) of the unfavourable outcomes were seen in the cases managed only by cardiac medications (RR Mx v/s Sx+Mx= 2.83; p<0.0001).

The patients with acquired heart diseases showed 2 times more odds of developing maternal unfavourable outcomes than the congenital heart disease group (OR= 2.3). Acquired heart diseases showed a slightly greater odds (OR= 1.24) of developing unfavourable fetal outcomes like IUGR, IUD and oligomnios. Unfavourable outcomes in the neonates like MSB and FSB had significantly higher odds in the acquired heart diseases group (OR= 4.68). Congenital heart disease group showed a slightly higher odds of developing postnatal unfavourable outcomes than the acquired heart diseases group.

This study we conducted supported the fact that maternal risk factors contribute majorly to the pregnancy outcome in cardiac cases with pregnancy. We could also conclude that the surgically corrected cardiac cases had a better pregnancy

outcome even though further studies may be required and that the surgeries per say did not contribute much to the feto-maternal morbidity and mortality.

The odds of a normal vaginal delivery occurring in a pregnant patient who was managed both by surgical and medical treatment for their cardiac condition was four times more than that compared to the non-intervention group.

We also found in this research that IUGR occurred two times more commonly in multigravida than in primigravida. Unfavourable outcomes in the neonates like MSB and FSB had four times higher odds of occurrence in the acquired heart diseases group.

Appropriate counselling regarding the prognosis before conception and also during present pregnancy is of paramount importance. Multi faculty, timely approach and follow-up with a single team throughout the pregnancy was the cornerstone for a better outcome as observed in our study. Only a proper follow-up and strict adherence to the universal and institutional protocols help us easily manage the cardiac cases in pregnancies.

Vigilant monitoring of the cardiac cases managed conservatively for the deterioration of their cardiac condition is a priority as the pregnancy progresses.

In a low-income country like India socio-economic causes of neglect of cardiac cases in pregnant mothers is another prime factor to watch for.

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ANNEXUREI
ETHICAL CLEARANCE.

K.L.E. ACADEMY OF HIGHER EDUCATION AND RESEARCH
(Deemed – to- be- University)
Accredited 'A' Grade by NAAC (2nd Cycle) Placed in Category 'A' by MHRD (GoI)
JAWAHARLAL NEHRU MEDICAL COLLEGE,
NEHRU NAGAR, BELAGAVI-590010 (KARNATAKA-INDIA)
Website: http//www.jnmc.edu
E-Mail : dome@jnmc.edu
Phone: (+ 91-(0)831 Office : 2472550
Principal: 2471701
Fax No. +91 (0)831 – 2470759

Ref: MDC/DOME/ 68 **Date: 24/11/2018**

To,

REG. NO. BJ0118003

PG student in Obstetrics and Gynaecology,
J.N.Medical College,
BELAGAVI.

Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled **"MATERNAL AND FETAL OUTCOMES AMONG PREGNANT WOMEN WITH HEART DISEASE- A PROSPECTIVE STUDY",** is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee on Human Subjects Research.

(Dr. Arathi Darshan)
Member Secretary
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

(Dr. Roopa M Bellad)
Chairman,
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

ANNEXURE II

CONSENT FOR PARTICIPATION IN RESEARCH STUDY

"Maternal and fetal outcomes among pregnant women with heart disease - A prospective study".

Mrs. _____ we are requesting you to enroll yourself in study **"Maternal and fetal outcomes among pregnant women with heart disease – A prospective study"** conducted by REG. NO. BJ0118003, Post Graduate in M.S. Obstetrics and Gynaecology under the guidance of DR._____, Department of Obstetrics and Gynaecology, J.N. Medical College, Belgaum under KLE university, Belgaum. The purpose of research study is to know the maternal and fetal outcomes in mothers with heart disease during pregnancy. I will be the investigator for our study. This study is not being funded. I am going to give you information about this research project. Before you decide, you can talk to anyone you feel comfortable with about the research.

Objectives /purpose of study:

a) Respected Madam we request you to participate in our study as you are eligible for participating and your participation in this study is important as it helps us to study the feto – maternal outcomes in pregnant mothers with heart disease,it would help us improve the perinatal outcome and would also help us to further prevent any complications in mothers with same condition.

b) Your participation in research is voluntary. Your decision whether to participate in the study or not will not change present or future health care services offered to you and will not affect your relationship with KLE's Dr. Prabhakar Kore Hospital,Belagavi. If you decide to participate you are free to withdraw at any

time.All pregnant women meeting the inclusion criteria will be recruited in our study.

c) The purpose of research study is to know the perinatal outcome in mothers with heart disease. I will be the investigator for our study. This study is not being funded.

Type of Study:

This is a hospital based observational to determine the maternal and fetal outcomes in pregnant mothers more than 20 weeks of gestation with cardiac disease

Participant selection

We are inviting all women more than 20 weeks period of gestation admitted with known or newly diagnosed cardiac disease (congenital or acquired) whether symptomatic or asymptomatic after applying the exclusion criteria.

Voluntary Participation

Your participation in research is voluntary.Your decision whether to participate in the study or not will not change present or future health care services offered to you and will not affect your relationship with J.N. Medical College.

Procedure Involved:

If you agree to enroll yourself in this study, you will be interviewed regarding your present, past and family history, then you will be clinically examined in detail and investigated which may or may not cause pain. The procedures don't cause any temporary or lasting problems to you. Your co-operation is necessary as the investigations may be repeated number of times as required.

Risks and Benefits:

There are no potential risks and discomforts associated with any procedure involved in our study.The benefits of taking part in this research is that you can contribute to medical research to improvise treatment currently practiced.

Alternative:

There are no other options of treatment. If you decline to participate it will affect the results of our study and you will get the routine line of management. You will be informed about any new information that may affect your decision to participate in the study.

Withdrawal from study:

You can withdraw at any time from the study. There will be no penalty for withdrawal. You can be removed from the study if necessary

Privacy and Confidentiality:

The only people who will know that you are the research subject will be the members of the research team. No information about you or information provided by you during the research will be disclosed to others without your written permission except:

a) In emergency to protect your rights and welfare.

b) If required by law.

Institutional/sponsor's policy:

In the event of any injury related to the study, treatment will be made available through KLE's Charitable Hospital & MRC, Belagavi. There is no compensation or payment for such medical treatment by law. If you come across any complications due to the study, you may contact REG. NO. BJ0118003, Post graduate student, Department of Obstetrics and Gynaecology, KLE's Hospital& MRC.

Financial Incentives for participation:

No financial incentives are being offered to enrolled patients. It is purely being done with the idea of research and all the cost of the study will be borne by the investigator. You will not be reimbursed for any expenses for participation in this research.

Contact details:

In case you have any questions related to the study, in future or in case of study related injury or illness, you can contact REG. NO. BJ0118003, Post graduate student, Department of Obstetrics andGynecology, KLE's Hospital and MRC, Ph. No:_____or Dr. _____ Professor, Dept. of Obstetrics andGynecology, KLE's Hospital and MRC, Belgaum, Ph. No: _____.

If you have any queries about your rights as a study participant, you may contactDr. Roopa M Bellad, Prof. of Pediatrics as Chairman of J. N. Medical College Institutional Ethics Committee on Human Subjects Research, Phone No.0831 2473777 ext-1527 at J. N. Medical College.

Authorization to Publish Results:

When the results of the research are published or discussed, in a conference, no information will be displayed that would disclose your identity. Any information that is obtained in connection with this study and that can be identified with you will remain confidential. Results of the study will be used to improve maternal and perinatal outcome.

Consent Statement:

I, _____ voluntarily agree for participating in this study. By signing this consent form I am not giving up any of my legal rights, I may withdraw from the study anytime. I am signing the consent form after having read or been read in my own vernacular language, including the risks and the benefits and having all my questions answered.

Participant Name : _____

Signature orthe Left Thumb Print of Participant : _____

Investigators Name: _____ Signature: _____

Witness Name : _____ Signature: _____

Date: _____

ಸಂಶೋಧನಾಅಧ್ಯಯನದಲ್ಲಪಾಲ್ಗೊಳ್ಳಲುಒಪ್ಪಿಗ

"ಹೃದಯರೋಗದೂಂದಿಗೆಗರ್ಭಿಣಿಯರಿಗೆತಾಯಿಯಮತ್ತುಭ್ರೂಣದಪರಿಣಾಮಗಳು -
ಒಂದುನಿರೀಕ್ಷಿತಅಧ್ಯಯನ".

ಶ್ರೀಮತಿ. _____

''ನಿಮ್ಮನ್ನುಹೃದಯರೋಗದೂಂದಿಗಗರ್ಭಿಣಮಹಿಳೆಯರಲ್ಲತಾಯಿಯಮತ್ತುಭ್ರೂಣಫಲತಾಂಶಗಳು - REG. NO. BJ018003,
_____ಪ್ರಾಧ್ಯಾಪಕರಮಾರ್ಗದರ್ಶನದಲ್ಲಿಎಂ.ಎಸ್.

ಅಬ್ಸ್ಟ್ರಕ್ಟ್ತುಜನಕಾಲಜಯಿಲ್ಲನಪೋಸ್ಟ್ಡಾಯೀಟ್ಟಡಸದೆಅಧ್ಯಯನೆದಲ್ಲನಮ್ಮನ್ನುತೂಡಗಸಕೂಳ್ಳಲುನಾವುಮನವಮಾಡು
ತ್ತಿದ್ದೇವೆ. , ಅಬ್ಸ್ಟ್ರಕ್ಟ್ತುಜನಕಾಲಜಇಲಾಖೆ,' ಜವನ್ಮಡಕಲ್ಕಾಲೇಜು,' ಕವಲೂಇಶ್ವವಿದ್ಯಾಲಯ, ಬಳಗಾವನಲ್ಲ.
ಗರ್ಭಾವಸ್ಥೆಯಲ್ಲಿತಾಯಂದಿರಲ್ಲಿಹೃದಯಕಾಯಿಲೆಯಿಂದತಾಯಿಯಮತ್ತುಭ್ರೂಣದಪರಿಣಾಮಗಳನ್ನುತಿಳಿದುಕೊಳ್ಳುವುದುಸಂ
ಶೋಧನಾಉದ್ದೇಶ. ನಮ್ಮಅಧ್ಯಯನಕ್ಕೆನಾನುಶೋಧಕನಾಗಿರುತ್ತೇನೆ. ಈಅಧ್ಯಯನಕ್ಕೆಹಣಇಲ್ಲ.
ನಾನುಈಸಂಶೋಧನಾಯೋಜನಯಬಗ್ಗೆಮಾಹಿತಿಯನ್ನುನೀಡಲುಹೋಗುತ್ತೇನೆ. ನೀವುನಿರ್ಧರಿಸುವಮೊದಲು,
ನೀವುಸಂಶೋಧನೆಯಬಗ್ಗೆಹಾಯಾಗಿರುತ್ತಿದ್ದಯಾರಿಗಾದರೂಮಾತನಾಡಬಹುದು.

ಉದ್ದೇಶಗಳು / ಉದ್ದೇಶದಉದ್ದೇಶ:

ಎ) ಗೌರವಾನ್ವತಮಾಡಮ್ಮಮ್ಮಅಧ್ಯಯನದಲ್ಲಪಾಲ್ಗೊಳ್ಳಲುನೀವುಅರ್ಹರಾಗದ್ದು,
ಈಅಧ್ಯಯನದಲ್ಲನಮ್ಮಪಾಲ್ಗೊಳ್ಳುವಿಕಯುಮುಖ್ಯವಾದುದುಎಂದುನಾವುಮನವಿಮಾಡುತ್ತೇವೆ.
ಗರ್ಭಿಣಿತಾಯಂದಿರಲ್ಲಿಹೃದ್ರೋಗದಲ್ಲಿಫೋ-
ತಾಯಿಯಫಲತಾಂಶಗಳನ್ನುಅಧ್ಯಯನಮಾಡಲುಇದುನಮಗೆಸಹಾಯಮಾಡುತ್ತದ.
ಪರಿನಾಟಲ್ಫಲಿತಾಂಶಮತ್ತುತಾಯಿಂದರಿಲ್ಲಿದೇಸ್ಥಿತಿಯಿಂದಗಯಾವುದೇತೊಡಕುಗಳನ್ನುತಡಯಲುಸಹನಮಗಸಹಾಯಮಾ
ಡುತ್ತದೆ.

ಬೌ) ಸಂಶೋಧನಯಿಲ್ಲನಮ್ಮಭಾಗವಹಿಸುವಕಸ್ಯಯಿಂಪ್ರೇರಿತವಾಗಿರುತ್ತದ.
ಅಧ್ಯಯನದಲ್ಲಭಾಗವಹಿಸಲುಅಥವಾಇಲ್ಲವೇಎಂದುನಮ್ಮನಿರ್ಧಾರವುನಮಗೆಪ್ರಸ್ತುತಪಡಿಸದಭವಿಷ್ಯದಅಥವಾಭವಿಷ್ಯದಆ
ರೋಗ್ಯಸೇವೆಗಳನ್ನುಬದಲಿಸುವುದಿಲ್ಲಮತ್ತುಕವಲ್ಇನಡಾ. ಪ್ರಭಾಕರ್ಕೋರೆಹೊಸ್ಪಿಟಲ್,
ಬೆಲಾಗವಿಅವರೊಂದಿಗಿನನಿಮ್ಮಸಂಬಂಧವನ್ನುಇದುಪ್ರಭಾವಿಸುವುದಲ್ಲ.
ನೀವುಭಾಗವಹಿಸಲುನಿರ್ಧರಿಸಿದಲ್ಲಿನೀವುಯಾವುದೇಸಮಯದಲ್ಲಿಹಿಂಪಡೆಯಲುಸ್ವತಂತ್ರರಾಗಿರುತ್ತಾರ.
ಸೇರಿಸುವಮಾನದಂಡಗಳನ್ನುಪೂರ್ಯಿಸುವವಲ್ಲಾಗರ್ಭಿಣಮಹಿಳೆಯರನಿಮ್ಮಅಧ್ಯಯನದಲ್ಲನೀಮಕಗೂಳ್ಳುತ್ತಾರೆ.

ಸಿ) ' ಹೃದಯಕಾಯಿಲಹೂಂದಿರುವತೆಯಿಂದಿರಲ್ಲಪೀಡತಫಲತಾಂಶವನ್ನುತಳಿಯುವುದುಸಂಶೋಧನಾಉದ್ದೇಶ.
ನಮ್ಮಅಧ್ಯಯನಕ್ಕೆನಾನುಶೋಧಕನಾಗಿರುತ್ತೇನಿ. ಈಅಧ್ಯಯನಿಕ್ಕೆಹಣಇಲ್ಲ.

ಅಧ್ಯಯನಪ್ರಕಾರ

ಗರ್ಭಿಣಿತಾಯಂದಿರಲ್ಲಿ 20
ವಾರಗಳಿಗಿಂತಲೂಹಚ್ಚುಗರ್ಭಿಣರೋಗದೂಂದಿಗಗರ್ಭಾವಸ್ಥೆಯಲ್ಲತಾಯಿಯಮತ್ತುಭ್ರೂಣದಫಲತಾಂಶಗಳನ್ನುನರ್ಣಯಿಸಲುಆ
ಸ್ಪತ್ರೆಆಧಾರಿತಅವಲೋಕನವಾಗಿದೆ.

ಭಾಗವಹಿಸುವವರುಆಯ್ಕೆ

ಬಹಿಷ್ಕಾರಮಾನದಂಡವನ್ನುಅನ್ವಯಿಸದಿನಂತರರೋಗಲಕ್ಷಣದಲಿಥವಾರೋಗಲಕ್ಷಣಗಳಲ್ಲದಯೀತಳದರುವಲಿಥವಾಹೂಸದಾ
ಗಿರೋಗಪರಿಷ್ಕರಿಸದಹೃದಯರೋಗದ (ಜನ್ಮಜಾತಲಿಥವಾಸ್ವಾಧೀನಪಡಸಕೂಂಡರುವ) ಜೊತೆಸೀರಿಸಲ್ಪಟ್ಟ 20
ವಾರಗಳಿಗಿಂತಲೂಹಚ್ಚಿನಗರ್ಭಧಾರಣೆಅವಧಿಯಎಲ್ಲಾಮಹಿಳೆಯರನ್ನುನಾವುಆಹ್ವಾನಿಸುತ್ತಿದ್ದೇವೆ.

ಸ್ವಯಂಪ್ರೇರಿತಭಾಗವಹಿಸುವಿಕೆ

ಸಂಶೋಧನೆಯಲ್ಲಿಭಾಗವಹಿಸುವಿಕೆಯುಸ್ವಯಂಪ್ರೇರಿತವಾಗಿರುತ್ತದೆ.
ಅಧ್ಯಯನದಲ್ಲಪಾಲ್ಗೊಳ್ಳಿಬೇಕೆಲಿಥವಾಇಲ್ಲವೇನಮ್ಮನಿರ್ಧಾರವಿಪ್ರಸ್ತುತಲಿಥವಾಭವಿಷ್ಯದಲಿರೋಗಿಯಾಗಿಸೇವೆಗಳನ್ನುಬದಲಸುವುದಲ್ಲಮತ್ತುಜವನ್ಮೆಡಕಲ್ಕಾಲೇಜ್ನೊಂದಿಗನನಸಮ್ಮಸರಬಂಧದಮೇಲಪರಿಣಾಮಿಬೀರುವುದಲ್ಲ.

ಕಾರ್ಯವಿಧಾನಕ್ಕೆಒಳಪಟ್ಟದ:

ಈಅಧ್ಯಯನದಲ್ಲಿನಿಮ್ಮನ್ನುತೊಡಗಿಸಿಕೊಳ್ಳಲುನೀವುಒಪ್ಪಿಕೂಂಡರ, ನಮ್ಮಪ್ರಸ್ತುತ,
ಹಿಂದಿನಮತ್ತುಕುಟುಂಬದಇತಿಹಾಸದಬಗ್ಗೆಸಂದರ್ಶನಮಾಡಲಾಗುವುದು,
ನಂತರನೀವುಪ್ರಾಯೋಗಿಕವಾಗಿಪರಿಶೀಲಿಸಲಾಗುವುದುಮತ್ತುನೋವುಉಂಟುಮಾಡದಿರಬಹುದುಲಿಥವಾತನಖಮಾಡಲಾಗುವುದು. ಕಾರ್ಯವಿಧಾನಗಳುನಿಮಗೆಯಾವುದೇತಾತ್ಕಾಲಿಕಲಿಥವಾಶಾಶ್ವತಸಮಸ್ಯೆಗಳನ್ನುಉಂಟುಮಾಡುವುದಿಲ್ಲ.
ಅಗತ್ಯವಿರುವಂತತನಖೆಗಳನ್ನುಅನೇಕಬಾರಿಪುನರಾವರ್ತಿಸಬಹುದುಎಂದುನಿಮ್ಮಸಹಕಾರಅವಶ್ಯಕವಾಗಿದೆ.

ಅಪಾಯಗಳುಮತ್ತುಲಾಭಗಳು:

ನಮ್ಮಅಧ್ಯಯನದಯಾವುದೇಕಾರ್ಯವಿಧಾನಕ್ಕಸೆಂಬಂಧಿಸದಯಾವುದೇಸಂಭವನೀಯಅಪಾಯಿಗಳುಮತ್ತುತೂಂದರಗಳಲ್ಲ.
ಈಸಂಶೋಧನೆಯಲ್ಲಿಪಾಲ್ಗೊಳ್ಳುವಪ್ರಯೋಜನಗಳನ್ನುನೀವುಪ್ರಸ್ತುತಚಿಕತ್ಸೆಯನ್ನೆಸುಧಾರಿಸಲುವೈದ್ಯಕೀಯಸಂಶೋಧನಗಸ
ಹಾಯಮಾಡಬಹುದು.

ಪರ್ಯಾಯ:

ಚಿಕಿತ್ಸೆಯಾವುದೇಆಯ್ಕೆಗಳಲ್ಲ.
ನೀವುಪಾಲ್ಗೊಳ್ಳಲುನರೌಕರಸದಿರೆಅದುನಮ್ಮಅಧ್ಯಯನದಫಲತಾಂಶಗಳಮೇಲಪರಿಣಾಮಬೀರುತ್ತದಮತ್ತುನೀವುಸರ್ವಹಣಯ
ನಿಯಮಿತಮಾರ್ಗವನ್ನುಪಡಯುತ್ತೀರ.
ಅಧ್ಯಯನದಲ್ಲಿಪಾಲ್ಗೊಳ್ಳುವನಿಮ್ಮನಿರ್ಧಾರದಮೇಲೆಪರಿಣಾಮಬೀರುವಯಾವುದೇಹೂಸಮಾಹಿತಯಿಕುರಿತುನಮಗತಳಿಸಲಾಗುವುದು.

ಅಧ್ಯಯನದಿಂದಹಿಂತಗದುಕೂಳ್ಳುವಿಕ:

ಅಧ್ಯಯನದಿಂದನೀವುಯಾವುದೇಸಮಯದಲ್ಲಿಹಿಂಪಡೆಯಬಹುದು. ವಾಪಸಾತಗಿಯಾವುದೇದಂಡವಲ್ಲ.
ಅಗತ್ಯವಿದ್ದರೆನೀವುಅಧ್ಯಯನದಿಂದತೆಗದುಹಾಕಬಹುದು

ಗೂಪ್ಯತಮತ್ತುಗೂಪ್ಯತ:

ನೀವುಸಂಶೋಧನಾವಿಷಯವಂದುತಿಳಿಯುವವರಿಕ್ಕೆಕಜನರುಸಂಶೂಧನಾತಂಡದಸದಸ್ಯರಾಗದ್ದಾರ.
ಹೂರತುಪಡಿಸಿನಿಮ್ಮಲಿಖತಅನುಮತಿಯಲ್ಲದಯೇಸಂಶೂಧನೆಯಸಮಯದಲ್ಲನಿಮಗಲಿಥವಾಮಾಹಿತಯಿಬಗ್ಗೆಯಾವುದೇ
ಮಾಹಿತಯುಬಹಿರಂಗಗೂಳ್ಳುವುದಿಲ್ಲ:
ಎ) ತುರ್ತುಪರಿಸ್ಥಿತಿಯಲ್ಲಿನಿಮ್ಮಹಕ್ಕುಗಳನ್ನುಮತ್ತುಕಲ್ಯಾಣವನ್ನುರಕ್ಷಿಸಲು.
ಬ) ಕಾನೂನುಅಗತ್ಯವಿದ್ದರೆ.

ಸಾಂಸ್ಥಿಕ / ಪ್ರಾಯೋಜಕರನೀತಿಗಳು :

ಅಧ್ಯಯನಕ್ಕೆಸಂಬಂಧಿಸಿದಯಾವುದೇಗಾಯದಸಂದರ್ಭದಲ್ಲ. ಕಎಲ್ಇಎಸ್ಟಾರಟಬಲ್ಹಾಸ್ಪಟಲ್ಮತ್ತುಎಂಆರ್ಸಿ, ಬೆಳಗಾಮ್ಮೂಲಕಚಿಕಿತ್ಸಲಭ್ಯವಾಗುತ್ತದೆ.

ಕಾನೂನಿನಮೂಲಕಇಂತಹವೈದ್ಯಕೀಯಚಿಕಿತ್ಸೆಗೆಯಾವುದೇಪರಿಹಾರಅಥವಾಪಾವತಿಇಲ್ಲ.

ಅಧ್ಯಯನದಕಾರಣದಿಂದಾಗಿನೀವುಯಾವುದೇತೊಡಕುಗಳನ್ನುಎದುರಿಸಿದರೆ, ನೀವುREG. NO. BJ0118003, ಪೋಸ್ಟ್ ದಬೀಧರವಿದ್ಯಾರ್ಥಿ, ಪ್ರಸೂತಿಮತ್ತುಸ್ತ್ರೀರೋಗಶಾಸ್ತ್ರಇಲಾಖೆ, ಕೆಎಲ್ಇಎಸ್ಟಾಸ್ಪಿಟಲ್&ಎಮ್ಆರ್ಸಿ.

ಭಾಗವಹಿಸುವಿಕೆಗಾಗಿಹಣಕಾಸಿನಉತ್ತೇಜಕಗಳು:

ನೂಂದಾಯಿತರೋಗಿಗಳಿಗಹಣಕಾಸಿನಉತ್ತೇಜನನೀಡಲಾಗುವುದಲ್ಲ.

ಇದುಕೇವಲಸಂಶೋಧನಯಿಪಂಕಲ್ಪನಯೂಂದಿಗಮಾಡಲ್ಪಟ್ಟದಮತ್ತುಅಧ್ಯಯನದಎಲ್ಲಾವಚ್ಚವನ್ನುತನಖದಾರಯಹೂಂದುತ್ತಾರ. ಈಹುದುಕಾಟದಲ್ಲಪಾಲ್ಗೊಳ್ಳಲುಯಾವುದೇಖರ್ಚುಗಳಿಗೂನೀವುಮರುಪಾವತಿಮಾಡಲಾಗುವುದಲ್ಲ.

ಸಂಪರ್ಕವಿವರಗಳು :

ಭವಿಷ್ಯದಲ್ಲಅಥವಾಅಧ್ಯಯನದಸಂಬಂಧತಗಾಯಿಅಥವಾಅನಾರೋಗ್ಯದಸಂದರ್ಭದಲ್ಲನೀವುಅಧ್ಯಯನಕ್ಕೆಸಂಬಂಧಿಸದಯಾವುದೇಪ್ರಶ್ನೆಗಳನ್ನುಹೂಂದಿದ್ದರ, REG. NO. BJ0118003, ಪೋಸ್ಟ್ ದಬೀಧರವಿದ್ಯಾರ್ಥಿ, ಪ್ರಸೂತಿಮತ್ತುಸ್ತ್ರೀರೋಗಶಾಸ್ತ್ರಇಲಾಖೆ, ಕಎಲ್ಇಎಸ್ಟಿಸ್ವತ್ರಮತ್ತುಎಮ್ಆರ್ಸಿ, ದೂರವಾಣಸಂಖ್ಯ. : _____ಡಾ. _____ಪ್ರಸೂತಿಮತ್ತುಸ್ತ್ರೀರೋಗಶಾಸ್ತ್ರಇಲಾಖಯಿಪ್ರಾಧ್ಯಾಪಕ, ಕಎಲ್ಇಯಿಂಸವರ್ಸಟಯಿಬವಾಹರಲಾಲ್ನಹರೂಮಡಕಲ್ಕಾಲೇಜ್, ಬಳಗಾವ.

ಅಧ್ಯಯನಏಷಯವಾಗಿನಮ್ಮಹಕ್ಕುಗಳಕುರಿತುನೀವುಯಾವುದೇಪ್ರಶ್ನೆಗಳನ್ನುಹೂಂದಿದ್ದರ, ನೀವುಕರಮಾಡಬಹುದುಡಾ. ರೂಪಾಎಂಬಲ್ಲಾಡ್,

ಮಾನವಏಷಯಿಗಳಸಂಶೋಧನಜನಾಎನ್ಯಡಕಲ್ಕಾಲೇಜ್ಇನ್ಸ್ಟ್ಯೂಷನಲ್ಎಥಿಕ್ಸ್ಎಬಟಅಧ್ಯಕ್ಷರಾಗಿವೇಡಿಯಾಟ್ರಿಕ್ಸ್ಪ್ರೊಫೆಸರ್, ದೂರವಾಣಸಂಖ್ಯ. 0831 2473777 .

ಫಲಿತಾಂಶಗಳನ್ನುಪ್ರಕಟಿಸಲುಅಧಿಕಾರ :

ಸಂಶೋಧನಯಿಫಲತಾಂಶಗಳನ್ನುಪ್ರಕಟಿಸದಾಗಿಅಥವಾಚರ್ಚಿಸದಾಗ, ಒಂದುಸಮ್ಮೇಳನದಲ್ಲ, ನಮ್ಮಗುರುತನ್ನುಬಹಿರಂಗಪಡಿಸುವಯಾವುದೇಮಾಹಿತಯನ್ನುಪ್ರದರ್ಶಿಸಲಾಗುವುದಲ್ಲ.

ಈಅಧ್ಯಯನಕ್ಕೆಸಂಬಂಧಿಸದಂತಪಡದಮತ್ತುನಮ್ಮಂದಿಗಗುರುತಿಸಬಹುದಾದಯಾವುದೇಮಾಹಿತಗೂಪ್ಯವಾಗಿರುತ್ತದ.

ಅಧ್ಯಯನದಫಲತಾಂಶಗಳುತಾಯಿಯಮತ್ತುಪರನಾಟಲ್ಬರಣಾಮವನ್ನುಸುಧಾರಿಸಲುಬಳಸಲಾಗುತ್ತದ.

ಒಪ್ಪಿಗೆಯಹೇಳಿಕೆ

ನಾನು, _____ ಈಅಧ್ಯಯನದಲ್ಲಿಪಾಲ್ಗೊಳ್ಳಲುಸ್ವಯಿಂಪ್ರೇರಣೆಯಿಂದಒಪ್ಪುತ್ತೇನೆ.

ಈಸಮ್ಮತಿಯಿನಮೂನಯಿಲ್ಲಿಸಹಿಹಾಕುವಮೂಲಕನನ್ನಯಾವುದೇಕಾನೂನುಹಕ್ಕುಗಳನ್ನುನಾನುಬಿಡುತ್ತಿಲ್ಲ.

ನಾನುಯಾವಸಮಯದಲ್ಲಾದರೂಅಧ್ಯಯನವನ್ನುಹಿಂತೆಗೆದುಕೊಳ್ಳಬಹುದು.

ನನ್ನಸ್ಪಂತದೇಶೀಯಭಾಷೆಯಲ್ಲಿಒದಿದನಂತರಅಥವಾಒದಿದನಂತರ,

ಅಪಾಯಗಳುಮತ್ತುಪ್ರಯೋಜನಗಳನ್ನುಒಳಗೊಂಡಂತೆಮತ್ತುನನ್ನಎಲ್ಲಪ್ರಶ್ನೆಗಳಿಗೆಉತ್ತರಿಸಿದನಂತರನಾನುಒಪ್ಪಿಗೆಯನ್ನುಸಹಿ

ಮಾಡುತ್ತಿದ್ದೇನೆ .

ಭಾಗವಹಿಸುವವರು: _____

ಸಹಚೇತನಭಾಗವಹಿಸುವವರಎಡತಮ್ಮೆಬೆರಳನ್ನು _____

ತನಿಖಾಧಿಕಾರಿಗಳುಹಸರು : _____ ಸಹಿ: _____

ಪಟ್ನಸ್ಷರು : _____ ಸಹಿ: _____

ದಿನಾಂಕ : _____

संशोधनअभ्यासातसहभागघेण्यासाठीमंजूरी

"गर्भवतीमहिलांमध्येहृदयरोगअसलेल्यामातृ-गर्भाचेपरिणाम - संभाव्यअभ्यास".

श्रीमती _____

आम्हीआपणासअभ्यासामध्येनावनोंदणीकरण्यासविनंतीकरीतआहोत "एमआरओबस्टेट्रिक्सआणिगिनॅकोलॉजीमधीलपोस्टग्रेजुएटREG. NO. BJ0118003यांनीआयोजितकेलेल्यासंभाव्यअभ्यासातून" गर्भधारणाकरणाऱ्यास्त्रियांचागर्भधारणाकरणाऱ्यास्त्रियाआणिभ्रूणपरिणाम " ओबस्टेट्रिक्सआणिगायनकोलॉजीविभाग, जेएनमेडिकलकॉलेज, बेळगाव, केएलईविद्यापीठ, बेळगाव. गर्भधारणेदरम्यानमाताझालेल्याहृदयरोगातमातेच्याआणिगर्भाच्यापरिणामाचाशोधघेणेहाशोधअभ्यासाचाउद्देश आहे. मीआमच्याअभ्यासासाठीचौकशीकरणारआहे. हाअभ्यासनिधीजातनाहीआहे. मीयासंशोधनप्रकल्पाबद्दलमाहितीदेईन. आपणनिर्णयघेण्यापूर्वी, आपणसंशोधनासहसहजतेनेकोणालाहीबोलूशकता.

अभ्यासाचेउद्दिष्ट / उद्देश:

अ)

आदरणीयमॅडमआम्हीसहभागीहोण्यासाठीपात्रआहोतम्हणूनआपणआमच्याअभ्यासातसहभागीहोण्याचीविनंतीकरतोआणियाअभ्यासातआपलासहभागहामहत्वाचाआहेकारणगर्भधारणाझालेल्यामातांच्याहृदयरोगातीलगर्भ-मातृत्वपरिणामांचाअभ्यासकरण्यासआम्हालामदतकरते, यामुळेआम्हालासुधारण्यातमदतहोईलजन्माच्यापरिणामामुळेआणित्याचस्थितीतमातेमध्येकोणतीही समस्याटाळण्यासआम्हालामदतहोईल.

बी)

संशोधनमध्येआपलेसहभागस्वैच्छिकआहे.अभ्यासातसहभागीव्हायचेआहेकिंवानाहीहेआपल्यानिर्णयामुळेआपल्यालादिलेलीवर्तमानकिंवाभविष्यातीलआरोग्यसेवासेवाबदलणारनाहीतआणिकेएलईच्याडॉप्रभाकरकोरहॉस्पिटल, बेलगवीच्याआपल्यानातेसंबंधावरत्याचापरिणामहोणारनाही. आपणभागघेण्याचानिर्णयघेतल्यासआपणकोणत्याहीवेळीमागेघेण्यासमोकळेआहात. सर्वगर्भवतीमहिलांनीसमावेशकरण्याच्यानिकषांशीजुळवूनघेतल्यासआमच्याअभ्यासातभरतीकेलीजाईल.

सी) संशोधनअभ्यासाचाहेतूहाहृदयरोगअसलेल्यामाता मधीलजन्माच्यापरिणामाचीमाहितीआहे.मीआमच्याअभ्यासासाठीचौकशीकरणारआहे.हाअभ्यासनि धीजातनाहीआहे.

अभ्यासप्रकार:

हृदयविकाराच्यागर्भाशयाच्या 20
आठवड्यांपेक्षाजास्तकाळगर्भवतीमाताच्यामाताआणिगर्भाच्यापरिणामाचेनिर्धारणकरण्यासाठीहाएक हॉस्पिटलआधारितअवलोकनआहे.

सहभागीनिवड

ज्ञातकिंवानव्यानेनिदानझालेल्याहृदयविकार (जन्मजातकिंवाअधिग्रहित)
यासहबहिष्कृतकिंवाअसमर्थितमानदंडलागूझाल्यानंतरआम्हीसर्वगर्भधारणेच्या 20
आठवड्यांपेक्षाजास्तगर्भधारणेसआमंत्रितकरीतआहोत.

स्वयंसेवीसहभाग

संशोधनमध्येतुमचासहभागस्वैच्छिकआहे.
अभ्यासातसहभागीव्हायचेआहेकिंवानाहीहेआपल्यानिर्णयामुळेतुम्हालादिलेलीवर्तमानकिंवाभविष्यातीलआरोग्य सेवासेवाबदलणारनाहीतआणिजे. एन. वैद्यकीयमहाविद्यालय यांच्याशीतुमचासंबंधप्रभावितहोणारनाही.

प्रक्रियासमाविष्ट

आपणयाअभ्यासातआपलेनावनोंदविण्याससहमतअसल्यास, आपल्याविद्यमान, मागीलआणिकौटुंबिकइतिहासाबद्दलमुलाखतघेतलीजाईल,
त्यानंतरआपल्यालावैद्यकीयदृष्ट्यातपासणीकेलीजाईलआणितपासणीकेलीजाईलजेकदाचितवेदनाहोऊशकतेकिं वाहोऊशकतनाही. याप्रक्रियेमुळेआपल्यालातात्पुरतीकिंवाकायमस्वरूपीसमस्यायेतनाहीत. आवश्यकतेनुसारतपासाचीपुनरावृत्तीकेलीजाऊशकतेम्हणूनआपलासहकार्यआवश्यकआहे.

धोकेआणिफायदे

आमच्याअभ्यासातसमाविष्टअसलेल्याकोणत्याहीप्रक्रियेशीसंबंधितकोणतेहीसंभाव्यजोखीमआणिअसंगतताना हीत.
यासंशोधनातभागघेण्याचेफायदेम्हणजेआपणसध्यासरावकेलेल्याउपचारांमध्येसुधारणाकरण्यासाठीवैद्यकीयसं शोधनमध्येयोगदानदेऊशकता.

पर्यायी:

उपचारांचेइतरपर्यायनाहीत.
जरआपणभागघेण्यासनकारदिलातरतेआमच्याअभ्यासाच्यापरिणामांवरपरिणामकरेलआणिआपल्या लानियमितव्यवस्थापनाचीव्यवस्थामिळेल.

अभ्यासातभागघेण्यासाठीआपल्यानिर्णयावरपरिणामकरणार्याकोणत्याहीनवीनमाहितीबद्दलआपल्या लासूचितकेलेजाईल.

अभ्यासपासूनपैसेकाढणे:

आपणकोणत्याहीवेळीअभ्यासपासूनमागेघेऊशकता. पैसेकाढण्यासाठीकोणतीहीदंडहोणारनाही. आवश्यकअसल्यासआपणअभ्यासपासूनकाढलेजाऊशकते

गोपनीयताआणिगुप्तता:

केवळआपणचसंशोधनविषयआहातहेचलोकशोधसंघाचेसदस्यअसतील.
आपल्याबद्दलकोणतीहीमाहितीकिंवासंशोधनदरम्यानआपल्याद्वारेप्रदानकेलेलीमाहितीआपल्यालिखितपरवान गीशिवायइतरांनाप्रकटकेलीजाणारनाही.

अ) आपत्कालीनपरिस्थितीतआपलेहक्कआणिकल्याणसुरक्षितठेवण्यासाठी.
बी) कायद्यानुसारआवश्यकअसल्यास.

संस्थात्मक / प्रायोजकधोरण:

अभ्याससंबंधितकोणत्याहीजखमझाल्यास, केएलईएसचॅरिटेबलहॉस्पिटलआणिएमआरसी, बेलगामद्वारेउपचारउपलब्धकेलेजातील.
कायद्याद्वारेअशावैद्यकीयउपचारांसाठीकोणतेहीनुकसानभरपाईकिंवापेमेंटनाही.
अभ्यासामुळेआपणासकोणत्याहीप्रकारचीगुंतागुंतझाल्यासआपणREG. NO. BJ0118003, पोस्टग्रेजुएटविद्यार्थी, ओबस्टेट्रिक्सआणिगायनॉकॉलॉजीविभाग, केएलईएसहॉस्पिटलआणिएमआरसीकिंवाफोननं. _____वरसंपकेसाधूशकता.

सहभागासाठीआर्थिकप्रोत्साहनः

नामांकितरुग्णांनाआर्थिकप्रोत्साहनदिलेजातनाही.
हेपूर्णेपणेसंशोधनसंकल्पनेसहकेलेजातआहेआणिसवेखर्चांचीतपासणीकरणार्यांकडूनकेलीजाईल.
याशोधक्रमातसहभागघेण्यासाठीआपल्यालाकोणत्याहीखर्चासाठीपरतफेडकेलेजाणारनाही.

संपर्कांचीमाहिती:

जरभविष्यातीलकिंवाअभ्याससंबंधितजखमकिंवाआजारांच्याबाबतीतआपणकाहीप्रश्नअसल्यास, आपणREG. NO. BJ0118003, पोस्टग्रॅज्युएटविद्यार्थी, ओबस्टेट्रिक्सआणिगायनॉकॉलॉजीविभाग, केएलएसहॉस्पिटलआणिएमआरसी,दूरध्वनीक्रमांक.यांच्याशीसंपकेसाधूशकता: _____

डॉ. _____.
ओबस्टेट्रीक्सआणिगायनकोलॉजीविभाग,
प्राध्यापककेएलईयुनिव्हर्सिटीचेजवाहरलालनेहरूमेडिकलकॉलेज,
बेलगावी, दूरध्वनीक्रमां .____

अभ्यासाच्याविषयाबद्दलआपल्यासकाहीप्रश्नअसतीलतरआपणकॉलकरूशकता

डॉ. रूपप्पाएमबेल ,
मानवविषयासंशोधनसंशोधनसंस्थ , जेएनमेडिकलकॉलेजचेअध्यक्ष
पेडियाट्रिक्सचेप्राध्यापक बेलागवी,फोननं. 0831 2473777

परिणामप्रकाशितकरण्यासाठीअधिकृतताः

जेव्हाशोधपरिणामांचेप्रकाशनकिंवाचर्चाकेलीजातेतेव्हाकॉन्फरन्समध्येकोणतीहीमाहितीप्रदर्शितकेलीजाणारनाही जीआपलीओळखउघडकरेल.
याअभ्यासाशीसंबंधितकोणतीहीमाहितीआणिआपल्यासहओळखलीजाऊशकतेतीगोपनीयराहील.
अभ्यासाचेपरिणाममातृआणिजन्मोत्तरपरिणामसुधारण्यासाठीवापरलेजातील .

मंजूरीविधानः

मी, _____

याअभ्यासातसहभागीहोण्यासाठीस्वेच्छेनेसहमतआहे.यासंमतीफॉर्मवरस्वाक्षरीकरुनमीमाझेकोणतेही कायदेशीरअधिकारसोडूनदेतनाही, मीकोणत्याहीवेळीअभ्यासमागेघेऊशकते.मीमाझ्यास्व : च्यास्थानिकभाषेतवाचल्यानंतरकिंवावाचल्यानंतर,

जोखीमआणिफायदेआणिमाझ्यासर्वप्रश्नांचीउत्तरेघेतल्यानंतरसंमतीफॉर्मवरस्वाक्षरीकरीतआहे.

सहभागीनाव: _____

सहभागीकिंवाडाव्याथंबसहभाग्याचेप्रिंटः _____

तपासकर्त्याचेनाव: _____ स्वाक्षरी: _____

साक्षीदारांचीनावे: _____ स्वाक्षरी: _____

तारीख: _____

अनुसंधानअध्ययनमेंभागलेनेकेलिएसहमति

"हृदयरोगकेसाथगर्भवतीमहिलाओंकेबीचमातृऔरभ्रूणपरिणाम - एकसंभावितअध्ययन"

श्रीमती _____

हमआपसेअनुरोधकरतेहैंकिआपडॉ।_____केमागेदर्शनमेंएमएसओबस्टेट्रिक्सऔरगायनकोलॉजीमें स्नातकोत्तरREG. NO. BJ0118003द्वाराआयोजितएकसंभावितअध्ययन "हृदयरोगकेसाथगर्भवतीमहिलाओंकेबीचमातृऔरभ्रूणपरिणामों" मेंअध्ययनकरनेकाअनुरोधकररहेहैं।प्रोफेसर, प्रसूतिएवंस्त्रीरोग विभाग , जेएनमेडिकलकॉलेज, बेलगामकेएलईविश्वविद्यालय, बेलगामकेतहतशोधअध्ययनकाउद्देश्यगर्भावस्थाकेदौरानहृदयरोगकेसाथमाताओंमेंमातृऔरभ्रूणकेपरिणामोंकोजा ननाहै।मैंअपनेअध्ययनकेलिएजांचकर्तोबनूंगा.इसअध्ययनकोवित्तपोषितनहींकियाजारहाहै.मैंआपकोइसशोधप रियोजनाकेबारेमेंजानकारीदेनेजारहाहूं.निर्णयलेनेसेपहले, आपअनुसंधानकेबारेमेंसहजमहसूसकरनेवालेकिसीभीव्यक्तिसेबातकरसकतेहैं.

उद्देश्य / अध्ययनकाउद्दे :

ए)

सम्मानितमैडमहमआपकोहमारेअध्ययनमेंभागलेनेकाअनुरोधकरतेहैंक्योंकिआपभागलेनेकेलिएपात्रहैंऔरइसअ ध्ययनमेंआपकीभागीदारीमहत्वपूर्णहैक्योंकियहहमेंहृदयरोगकेसाथगर्भवतीमाताओंमेंभ्रूण - मातृपरिणामोंकाअध्ययनकरनेमेंमददकरतीहै.

इससेहमेंसुधारनेमेंमददमिलेगीप्रसवोत्तरपरिणामऔरमाताओंमेंकिसीभीस्थितिकेसाथकिसीभीजटिलताकोरोकने केलिएहमेंभीमददमिलेगी।

बी) शोधमेंआपकीभागीदारीस्वैच्छिकहै।अध्ययनमेंभागलेनेकेलिएआपकानिर्णयक्याहैयानहीं, आपकोपेशकीजानेवालीवर्तमानयाभविष्यकीस्वास्थ्यदेखभालसेवाओंकोनहींबदलेगाऔरकेएलईएसडॉप्रभाकरकोर हॉस्पिटल,
बेलगावीकेसाथआपकेरिश्तेकोप्रभावितनहींकरेगा।यदिआपभागलेनेकाफैसलाकरतेहैंतोआपकिसीभीसमयवापसले नेकेलिएस्वतंत्रहैं।समावेशनमानदंडोंकोपूराकरनेवालीसभीगर्भवतीमहिलाएंहमारेअध्ययनमेंभर्तीकीजाएंगी।

सी)
शोधअध्ययनकाउद्देश्यहृदयरोगकेसाथमाताओंमेंजन्मजातपरिणामजाननाहै।मैंअपनेअध्ययनकेलिएजांचकरूंगा।इसअध्ययनकोवित्तपोषितनहींकियाजारहाहै।

अध्ययनकाप्रकार

यहहृदयरोगकेसाथगर्भावस्थाके 20 सप्ताहसेअधिकगर्भवतीमाताओंमेंमातृऔरभ्रूणपरिणामोंकोनिर्धारितकरनेकेलिएएकअस्पतालआधारितअवलोक नहै

प्रतिभागीचयन

हमबहिष्कारमानदंडोंकोलागूकरनेकेबादज्ञातयानएनिदानकार्डियकरोग (जन्मजातयाअधिग्रहण) केसाथभर्तीगर्भावस्थाके 20 सप्ताहसेअधिकसमयतकसभीमहिलाओंकोआमंत्रितकररहेहैं।

स्वैच्छिकभागीदारी

शोधमेंआपकीभागीदारीस्वैच्छिकहै।आपकानिर्णयअध्ययनमेंभागलेनाहैयानहीं,
आपकोपेशकीजानेवालीवर्तमानयाभविष्यकीस्वास्थ्यदेखभालसेवाओंकोनहींबदलेगाऔरजेएनमेडिकलकॉलेजके साथआपकेरिश्तेकोप्रभावितनहींकरेगा.

प्रक्रियाशामिल:

यदिआपइसअध्ययनमेंखुदकोनामांकितकरनेकेलिएसहमतहैं, तोआपसेआपकेवर्तमान, अतीतऔरपारिवारिकइतिहासकेबारेमेंसाक्षात्कारकियाजाएगा,
फिरआपकोचिकित्सकीयरूपसेविस्तारसेजांचकीजाएगीऔरजांचकीजाएगीकिदर्दहोसकताहैयानहीं।प्रक्रियाओंसेआ पकोकोईअस्थायीयास्थायीसमस्यानहींआतीहै।आपकासहयोगआवश्यकहैक्योंकिजांचकीआवश्यकताकेअनुसार बार-बारदोहरायाजासकताहै।

जोखिमऔरलाभ:

हमारेअध्ययनमेंशामिलकिसीभीप्रक्रियासेजुड़ेकोईसंभावितजोखिमऔरअसुविधानहींहैं।इसशोधमेंभागलेनेकेलाभ यहहैकिआपवर्तमानमेंअभ्यासमेंसुधारकेलिएचिकित्साअनुसंधानमेंयोगदानदेसकतेहैं।

वैकल्पिक:

उपचारकेकोईअन्यविकल्पनहींहैं।यदिआपभागलेनेसेइनकारकरतेहैंतोयहहमारेअध्ययनकेपरिणामोंको प्रभावितकरेगाऔरआपकोप्रबंधनकीनियमितरेखामिलजाएगी।आपकोकिसीभीनईजानकारीकेबारेमेंसू चितकियाजाएगाजोअध्ययनमेंभागलेनेकेआपकेफैसलेकोप्रभावितकरसकताहै।

अध्ययनसेनिकासी :

आपअध्ययनसेकिसीभीसमयवापसलेसकतेहैं।वापसीकेलिएकोईदंडनहींहोगा।यदिआवश्यकहोतोआपकोअध्ययन सेनिकालदियाजासकताहै

गोपनीयताऔरगोपनीयता:

एकमात्रलोगजोजानतेहोंगेकिआपशोधविषयहैं,
वेशोधदलकेसदस्यहोंगे।शोधकेदौरानआपकेद्वाराप्रदानकीगईजानकारीयाजानकारीकेबारेमेंकोईजानकारीआपके लिखितअनुमतिकेबिनादूसरोंकोप्रकटनहींकीजाएगी :

ए) आपातकालमेंअपनेअधिकारोंऔरकल्याणकीरक्षाकेलिए।
बी) यदिकानूनद्वाराआवश्यकहै।

संस्थागत / प्रायोजककीनीति:

अध्ययनसेसंबंधितकिसीभीचोटकीस्थितिमें, केएलईएसचैरिटेबलअस्पतालऔरएमआरसी, बेलगामकेमाध्यमसेउपचारउपलब्धकरायाजाएगा।कानूनद्वाराइसतरहकेचिकित्साउपचारकेलिएकोईमुआवजाया भुगताननहींहै।यदिआपअध्ययनकेकारणकिसीभीजटिलताओंमेंआतेहैं, तोआपडॉलमीजखान, स्नातकोत्तरछा , प्रसूतिएवंस्त्रीरोगविभाग, केएलईएसअस्पतालऔरएमआरसीयाफोननंबर: 8095713535 सेसंपकेकरसकतेहैं

भागीदारीकेलिएवित्तीयप्रोत्साहन :

नामांकितमरीजोंकोकोईवित्तीयप्रोत्साहननहींदियाजारहाहै।यहपूरीतरहसेशोधकेविचारसेकियाजारहाहै औरअध्ययनकीसभीलागतजांचकर्ताद्वारालीजाएगी।इसशोधमेंभागीदारीकेलिएआपकोकिसीभीखर्चके लिएप्रतिपूर्तिनहींकीजाएगी।

संपकेविवरण :

यदिआपकेपासअध्ययनसेसंबंधितकोईप्रश्नहैं, भविष्यमेंयाअध्ययनसेसंबंधितचोटयाबीमारीकेमामलेमें, आपREG. NO. BJ0118003, स्नातकोत्तरछात्र, प्रसूतिएवंस्त्रीरोग विभाग, केएलईएसअस्पतालऔरएमआरसीसेसंपकेकरसकतेहैं,फोननंबर :_____.

डॉ. _____.
ओबस्टेट्रीक्सऔरगायनकोलॉजीविभाग,
प्राध्यापककेएलईयुनिव्हर्सिटीचेजवाहरलालनेहरूमेडिकलकॉलेज,
बेलगावी, फोननंबर. _____.

यदिअध्ययनअध्ययनकेरूपमेंआपकेअधिकारोंकेबारेमेंआपकेकोईप्रश्नहैं, तोआपकॉलकरसकतेहैं

डॉ. रूपप्पाएमबेल ,
मानवविषयासंशोधनसंशोधनसंस्था, जेएनमेडिकलकॉलेजचेअध्यक्ष
पेडियाट्रिक्सचेप्राध्यापक बेलागवी, जेएनमेडिकलकॉलेज, फोननं. 0831 2473777

परिणामप्रकाशितकरनेकेलिएप्राधिकरण :

जबशोधकेपरिणामप्रकाशितहोतेहैंयाचर्चाकरतेहैं, एकसम्मेलनमें, कोईजानकारीप्रदर्शितनहींकीजाएगीजोआपकीपहचानकाखुलासाकरेगी।इसअध्ययनकेसंबंधमेंप्राप्तकीगईकोईभी जानकारीऔरआपकेसाथपहचानाजासकताहैगोपनीयरहेगा।अध्ययनकेपरिणाममातृऔरप्रसवकेपरिणाममेंसुधार केलिएइस्तेमालकियाजाएगा।

सहमतिकथन :

मैं, _____

स्वेच्छासेइसअध्ययनमेंभागलेनेकेलिएसहमतहूं।इससहमतिफॉर्मपरहस्ताक्षरकरकेमैंअपनेकिसीभीका नूनीअधिकारकोनहींछोड़रहाहूं,

मैंकिसीभीसमयअध्ययनसेवापसआसकताहूं।मैंअपनेस्वयंकेस्थानीयभाषामेंपढ़नेयापढ़नेकेबादसहमति फॉर्मपरहस्ताक्षरकररहा , जिसमेंजोखिमऔरलाभशामिलहैंऔरमेरेसभीसवालोंकेजवाबदिएगएहैं।

भागलेनेवालेकानाम : _____

हस्ताक्षरयाबाएंथंबप्रतिभागीकाप्रिंट: _____

जांचकर्ताकानाम: _____ हस्ताक्षर: _____

साक्षीकानाम: _____ हस्ताक्षर: _____

तारीख:_____

ANNEXURE III

SCREENING FORM

Maternal and fetal outcomes among pregnant women with heart disease – a prospective study

Name of the patient - _____

Inclusion criteria:

- Gestational age - <20 weeks ☐ > 20 weeks ☐
- Known case of cardiac disease – Yes ☐ No ☐
- Newly diagnosed cardiac disease during pregnancy –

  Yes ☐ No ☐
- If known case of cardiac disease –

  Symptomatic – ☐

Asymptomatic - ☐

Exclusion criteria:

- Known case of cardiac disease –

  For termination - Yes ☐ No ☐

- Incomplete medical records – Yes ☐ No ☐

ANNEXURE IV

PROFORMA

1. Name :
2. I.P. no -
3. Age : **Y** **N**
   1. <18 ☐ ☐
   2. 18 – 35 ☐ ☐
   3. >35 ☐ ☐
4. Parity **:**
   1. Primi : ☐ ☐
   2. $G_2 – G_3$: ☐ ☐
   3. > G_3 : ☐ ☐
5. Socio - economic status :

1. Low : ☐ ☐
2. Middle : ☐ ☐
3. High : ☐ ☐

6. Chief complaints:

a. Palpitations ☐ ☐

b. Dyspnoea ☐ ☐

c. Chest pain ☐ ☐

d. Cough ☐ ☐

e. Others

7. Obstetric history:

Married life-
Consanguinity-
Parity-

8. Menstrual history:

LMP-

EDD-

POG-

9. Medical history Y N

Rheumatic Fever ☐ ☐

10. Clinical presentation :

1. First time diagnosed : ☐ ☐
2. K/C/O cardiac disease : ☐ ☐

11. Time since diagnosis :

1. < 10 yr : ☐ ☐
2. 10- 20 yr : ☐ ☐
3. ≥ 20 yr : ☐ ☐

12. NYHA class : **Y** **N** **Y** **N**

1. Class I : ☐ ☐ 3. Class III : ☐ ☐
2. Class II ☐ 4. Class IV: ☐ ☐

13. Type of cardiac lesion :

Y N Y N

a) Congenital ☐ ☐ b) Acquired ☐ ☐

Y	**N**		**Y**	**N**
ASD	☐	☐	MS	☐ ☐
VSD	☐	☐	MS + MR	☐ ☐
TOF	☐	☐	MR	☐ ☐
PDA	☐	☐	AS	☐ ☐
COA	☐	☐	AR	☐ ☐
Ebstein	☐	☐	Multivalvular	☐ ☐
Eisenmenger's	☐	☐	others	

---

3. History of cardiac surgery ☐ ☐
4. Prosthetic valves ☐ ☐
5. Post B.M.V. ☐ ☐
6. Any other specify ☐ ☐

14. Cardiac Medications **:** **Y** **N**

1. No ☐ ☐
2. Digoxin ☐ ☐
3. Diuretics ☐ ☐
4. β – blockers ☐ ☐
5. Anticoagulation ☐ ☐

6. Any other specify

15. Associated medical problem : **Y** **N**

a. Anemia ☐ ☐

b. Chronic HT ☐ ☐

c. Respiratory disease ☐ ☐

d. Hypothyroidism ☐ ☐

e. Renal disease ☐ ☐

f. Any other specify ☐ ☐

16. Obstetric complications:

Y **N**

a. PIH ☐ ☐

b. Gestational diabetes ☐ ☐

c. Previous LSCS ☐ ☐

d. Abruption ☐ ☐

e. Twin pregnancy ☐ ☐

f. Placenta previa ☐ ☐

17. Type of delive: **Y** **N**

a. Spontaneous onset ☐ ☐

b. Induced ☐ ☐

- Vaginal ☐ ☐
- Instrumental ☐ ☐

- Forceps ☐ ☐
- Vacuum extractor ☐ ☐
- LSCS ☐ ☐

Prophylaxsis against infective endocarditis received ☐ ☐

17. Maternal outcomes: 1.Mortality ☐ ☐

2. Morbidity ☐ ☐

3. Cardiac complications ☐ ☐

4. Change in NYHA class ☐ ☐

	Y	**N**
a. New – onset cardiac complications	☐	☐
b. Deterioration of functional class	☐	☐
c. Atrial fibrillation	☐	☐
d. Supraventricular tachycardia	☐	☐
e. Infective endocarditis	☐	☐
f. Any other specify	☐	☐
g .Re-stenosis of cardiac valve	☐	☐

18. Post partum complication :

	Y	**N**
a. Respiratory failure	☐	☐
c. Pulmonary oedema	☐	☐
d. PPH	☐	☐
e. Postpartum collapse	☐	☐

f. Wound infection ☐ ☐

19. Fetal outcome:

a. Antenatal **Y** **N**

1. IUGR ☐ ☐

2 .Oligohydramnios ☐ ☐

3. IUD ☐ ☐

b.Neonatal Y **N**

1. Live born ☐ ☐

2. FSB ☐ ☐

3. MSB ☐ ☐

c. Gestational age (mean) Y N

1. < 32 wks ☐ ☐

2. 32 – 37 wks ☐ ☐

3. ≥ 37 wks ☐ ☐

d. APGAR SCORE-

Need for immediate neonatal intensive care ☐ ☐

e. Birth weight **Y** **N**

1. < 2.5 kg ☐ ☐

2. 2.5 – 3.5 kg ☐ ☐

3. ≥ 3.5 kg ☐ ☐

f. Birth defects ☐ ☐

Y=Yes

N=No

ANNEXURE V

KEY TO MASTER CHART

I.P NO. – In patient number

LMP – last menstrual period

EDD – expected date of delivery

POG – period of gestation

K/C/O – known case of

NYHA- New York Heart Association

ASD - Atrial septal defect

MS – mitral stenosis

MR – mitral regurgitation

VSD – ventricular septal defect

TOF – tetrology of fallot

PDA – patent ductus arteriosus

AS – atrial stenosis

COA – coarctation of aorta

AR – atrial regurgitation

B.M.V – balloon mitral valvotomy

LSCS – lower segment caesarean section

PIH – pregnancy induced hypertension

PPH – post partum haemorrhage

FSB – fresh still birth

MSB – macearated still birth

APGAR – appearance, pulse, grimace, activity, respiration

IUD – intra uterine death

IUGR – Intra uterine growth restriction

SL.NO.	AGE	PARITY	TIME SINCE DIAG	NYHA	TYPE OF CARDIAC LESION	CARDIAC LESION	SURGERY DONE	MEDICATIONS	MEDICAL COMPLICATIONS	OBSTETRIC COMPLICATIONS	CARDIAC COMPLICATIONS	DELIVERY	POSTPARTUM COMPLICATIONS	FETAL ANTENATAL OUTCOME	NEONATAL OUTCOME	NICU ADMISSION	GA	BIRTH WEIGHT	MORTALITY
1	19	G2A1	<10years	I	acquired	MVP with atrial ectopic, mild TR	nil	nil	thrombocytopena	nil	nil	spontaneous vaginal	nil	IUGR	live birth	nil	>37 weeks	2.1 kg	nil
2	27	G2P1L1	> 20 years	I	congenital	ASD	ASD closure	Nil	nil	nil	nil	emg LSCS i/v/o fetal distress	nil	nil	live birth	nil	>37 weeks	2.8kg	nil
3	25	G3P1L1A1	<10 years	I	acquired	MS + MR	nil	Penidure prophylaxis	nil	nil	nil	elective LSCS	nil	nil	live birth	nil	>37 weeks	2.6 kg	nil
4	21	G2P1L1	>20 years	I	acquired	AML + eccentric MR	nil	nil	nil	nil	nil	emg LSCS i/v/o failed induction	nil	IUGR	live birth	nil	37 weeks	2.3 kg	nil
5	22 years	primigravida	< 10 years	I	acquired	AR	Nil	nil	anaemia	nil	nil	ventouse delivery	nil	IUGR	live birth	nil	38 weeks 1 day	2.4 kg	nil
6	25	primi	<10 years	II	congenital	severe TR	nil	LMWH	Nil	nil	nil	emg LSCS i/v/o fetal distress	nil	IUGR	live birth	nil	> 37 weeks	2.3 kg	nil
7	28	G2P1L1	<10 years	I	congenital	ASD	nil	nil	nil	nil	nil	spontaneous vaginal	nil	nil	live birth	nil	>37 weeks	2.6 kg	nil
8	36	primi	<8 years	I	congenital	ASD with TR	ASD patch clos	nil	nil	PIH	nil	emg LSCS	nil	nil	live birth	nil	37 weeks	3.2 kg	nil
9	21	primi	10 years	I	acquired	MS + MR	nil	nil	nil	PIH	nil	emg LSCS	nil	nil	live birth	nil	40+3	2.8 kg	nil
10	27	G3P1A1D1	Since childhood	II	acquired	MS + MR	post BMV	Diuretic, anticoagulants, penidure prophylaxis	nil	nil	nil	spontaneous vaginal	nil	IUD	MSB	nil	<32weeks	<2.5 kg	nil
11	31	G2P1L1	1 week	I	acquired	SA nodal block	nil	nil	nil	oligamnios	nil	elective LSCS	nil	IUGR	live birth	nil	38 w 5 days	2.5 kg	nil
12	21 years	primigravida	10 - 20 years	I	congenital	ASD	nil	nil	nil	nil	nil	elective LSCS	nil	nil	live birth	nil	38 weeks 4 days	3 kg	nil
13	21 years	G2P1L0	3years	I	congenital	Severe MR	MVR	anticoagulants	thrombocytopena	nil	nil	elective LSCS	nil	IUGR	live birth	yes	40 weeks	1.9 kg	nil
14	19	primi	< 10 years	I	acquired	RHD - severe MR	MVR	anticoagulants	nil	nil	nil	spontaneous vaginal	nil	nil	live birth	nil	39+1	2.9 kg	nil
15	28 years	G4P3L3D1	< 10 years	IV	acquired	peripartum cardiomyopathy	nil	diuretics , beta blockers, anti coagulants, digoxin	anaemia	nil	cardiac ICCU admission	PTD	pulmonary edema	nil	FSB	nil	21 weeks 3 days	480 grms	mortality
16	29 years	G4P3L2D1	10 - 20 years	I	acquired	MVP , AML prolapse , MR , TR	nil	Penidure prophylaxis	nil	nil	nil	spontaneous vaginal	nil	nil	live birth	nil	38+1	3 kg	nil
17	33	G5P4L4	1 year	I	acquired	RHD - MVP with AML	nil	nil	nil	previous LSCS	nil	spontaneous vaginal	nil	nil	live birth	nil	36+6	2.6 kg	nil
18	25	primi	> 20 years	I	congenital	trivial TR , MR	ASD patch clos	Nil	nil	oligamnios	nil	emg LSCS	wound infection	nil	live birth	nil	34+3	2.4kg	nil
19	32	G2P1L1	> 20 years	II	acquired	RHD - MR , AR	nil	Penidure prophylaxis	thalassemia minor	previous LSCS	nil	elective LSCS	nil	nil	live birth	nil	38	3.54 kg	nil
20	24 years	G2A1	< 10 years	I	congenital	VSD	VSD closure	nil	nil	nil	nil	ventouse delivery	nil	nil	live birth	nil	37 weeks 2 days	2.5 kg	nil
21	24	primi	>20 years	II	congenital	MR , severe AR , severe TR	post BMV	diuretic, penicillin prophyllaxis, lasix, digoxin, beta blocker	nil	anamnios	nil	spontaneous vaginal	nil	nil	live birth	yes	25+5	580grms	nil
22	24	primi	10-20 year	I	acquired	severe AS	nil	anticoagulant, penidure prophylaxis	nil	nil	nil	emg LSCS i/v/o cervical dystocia	nil	nil	live birth	yes , hyperbilirubenemi	39	2.6 kg	nil
23	24	G2P1L0	10-20 years	II	congenital	ASD	ASD patch clos	nil	post pulmonary kochs	nil	nil	spontaneouos vaginal	nil	nil	live birth	nil	38	2.9 kg	nil
24	30	G2A1	10- 20 years	I	congenital	VSD with TOF	VSD closure	nil	nil	nil	nil	emg LSCS i/v/o fetal distress	nil	nil	live birth	, i/v/o respiratory distr	37+6	2.5kg	nil
25	35 years	G5P4L4	>20 years	II	acquired	MS - RHD , trivial AR , TR , PAH	MVR	diuretics, penidure prophylaxis, beta blockers	nil	nil	nil	spontaneous vaginal	nil	nil	live birth	nil	38+2	2.7 kg	nil
26	21	G2P1L1	10- 20 years	I	congenital	complete heart block	Percutaneous pa	deriphylline	nil	nil	nil	spontaneous vaginal	nil	nil	live birth	nil	39 weeks	2.6kg	nil
27	19 years	prmigravida	< 10 years	I	acquired	MS	nil	nil	anaemia	nil	nil	ventouse delivery	nil	nil	live birth	nil	38 weeks	2.5 kg	nil
28	23	G3P1L1A1	3 years	I	acquired	RHD - MS	nil	Penidure prophylaxis	nil	macrosomia	nil	elective LSCS	nil	nil	live birth	nil	36 w 4 days	3 kg	nil
29	30	G5P3L3A1	10 years	II	acquired	MS	Post BMV	T dytor , penicillin prophylaxis	nil	breech in labour	nil	spontaneous	nil	nil	live birth	, i/v/o respiratory distr	36	2.6 Kg	nil
30	28 years	primigravida	< 10 years	I	acquired	MS + MR	nil	nil	nil	nil	nil	FTD	nil	nil	live birth	nil	38 weeks 2 days	2.6 kg	nil
31	23	primi	<10years	II	acquired	peripartum cardiomyopathy	nil	diuretic, beta blocker	nil	nil	cardiac ICCU admission	elective LSCS	nil	IUGR	live birth	nil	39 weeks	2.2kg	nil
32	24	G3P2L1D1	<10 years	I	acquired	MR with TR	Post BMV	beta blocker, diuretic	nil	normotensive eclampsia	nil	spontaneous vaginal	nil	nil	live birth	nil	36 weeks	2.4 kg	nil
33	26	G2P1L1	<10 years	I	congenital	PS with RVH wth RA dilatation with TR	nil	nil	nil	previous LSCS	nil	Emg LSCS	nil	IUGR	live birth	nil	37+3	2.2 kg	nil
34	22 years	primigravida	< 10 years	I	congenital	ASD	nil		nil	nil	nil	PTD	nil	nil	live birth	yes , i/v/o PT with LBV	32 weeks 6 days	1.7 kg	nil
35	19	primi	10-20 years	II	congenital	TOF	TOF repair	nil	anaemia	imminent eclampsia	nil	spontaneous vacumm delivery	nil	nil	live birth	yes	36	2.2 kg	nil
36	25	G4P1L1A2	<10 years	I	acquired	trivial MR , MVP , AML prolapse	nil	beta blocker	nil	previous LSCS	nil	LSCS	nil	nil	live birth	nil	38weeks	3 kg	nil
37	26	G3P1L1A1	<10 years	I	acquired	MS + MR , AR + TR	nil	nil	URTI	GDM	nil	spontaneous	nil	IUGR	live birth	yes	37w 2 d	2.06 kg	nil
38	27 years	G2P1L1	< 10 years	I	acquired	MS + MR	nil	nil	nil	previous LSCS	nil	emg LSCS	nil	oligamnios	live birth	nil	38 weeks 4 days	2.8 kg	nil
39	24	G2P1L1	10 years	I	acquired	Mild MS with grade I MR , trivial TR	nil	Penidure prophylaxis	nil	nil	nil	spontaneous vaginal	nil	IUGR	live birth	yes	37+2	2.06kg	nil
40	33	primi	10-20 years	I	acquired	RHD - MS	nil	diuretics, beta blockers	nil	mild PE	nil	emg LSCS	nil	nil	live birth	, i/v/o respiratory distr	38+4	2.7kg	nil
41	25	G2P1L0	First time diagnosed	III	congenital	eisenmengers syndrome with large VSD	nil	beta blockers, diuretics, digoxin, anticoagulants	nil	nil	deterioration of cardiac disease,	spontaneous vaginal	nil	nil	live birth	eterm, lbw, respiratory	30+5	1.1kg	nil
42	25	G2P1L1	<10 years	II	acquired	Severe PS	pulmonary valv	digoxin, diuretucs	nil	nil	nil	spontaneous, vaccuumm	nil	nil	live birth	nil	39+5	2.6kg	nil

44	29	primi	First time diagnosed	II	acquired	severe MR , grade I TR	nil	digoxin, diuretic, beta blocker, anticoagulant	hypothyroidism, upper lo	nil	atrial fibrillation, morbidity ,	emg lscs	post partum collapse	IUGR	live birth	/o LBW , respiratory d	38 weeks	1.8 kg	nil
45	20	G2P1L1	2 years	II	congenital	MR , Moderate AR , MVP , complete heart blo	nil	diuretic , deriphylline	nil	nil	nil	spontaneous vaginal	nil	nil	live birth	nil	39+1	3.3kg	nil
46	27 years	G2P1L1	< 10 years	II	acquired	AML prolapse, TR	nil	nil	hypothyroidism	previous LSCS	nil	emg LSCS	nil	nil	live birth	nil	38 weeks 5 days	3 kg	nil
47	27	G2A1	10 years	I	acquired	grade i - MR	post BMV	Penidure prophylaxis	nil	nil	nil	emg lscs	nil	IUGR, oligohydraminos	live birth	es i/v/o , PT with LBW	34+6	1.5 kg	nil
48	24	G2P1L1	10-20 years	II	acquired	severe MS , trivial MR , trivial AR	nil	diuretic, digoxin, beta blocker, penicillin prophylaxis	URTI	previous LSCS	nil	emg LSCS	nil	nil	live birth	nil	37+1	2.6kg	nil
49	36	G3P2L2	12 years	I	acquired	MS	post MVR	Penidure prophylaxis	URTI, anaemia	nil	nil	spontaneous vaginal vacum	nil	IUGR	live birth	yes , LBW	39+2	2.2kg	nil
50	22 years	primigravida	< 10 years	I	acquired	AR	nil	nil	nil	nil	Nil	emg LSCS	nil	nil	live birth	nil	39 weeks 1 day	2.7 kg	nil
51	37	G3A2	First time diagnosed	IV	acquired	peripartum cardiomyopathy	nil	diuretic , anticoagulant, digoxin ,beta blocker	chronic HTN, renal disea	nil	cardiac ICCU admission	elective LSCS	nil	nil	live birth	yes, PT with LBW	31+2	1.2 kg	nil
52	27	G2P1L1	10 - 20 years	I	acquired	MS - RHD	post MVR	anticoagulant, ACE inhibitors	nil	nil	nil	spontaneous vaginal	nil	nil	live birth	nil	38+5	2.5 kg	nil
53	26	G3P1L1A1	1 year	II	congenital	severe AR	post coarctoplas	nil	hypothyroidism, upper lo	previous LSCS	nil	elective LSCS	nil	nil	live birth	nil	38 weeks	2.9 kg	nil
54																			
54	20	primi	<10 years	I	acquired	MVP	nil	nil	nil	nil	nil	emg LSCS	nil	nil	live birth	yes, PT with LBW	35 weeks 6 days	2.2kg	nil
55	27	G2P1L1	10-20years	I	acquired	MS	post MVR	diuretics, beta blockers	nil	nil	nil	FTVD	nil	Nil	live birth	nil	38 weeks 5 days	2.5 kg	nil
56	22	primi	<10 years	I	congenital	VSD	nil	nil	nil	PIH , GDM	nil	emg LSCS	nil	nil	live birth	nil	39 weeks 6 days	3 kg	nil
57	22	primi	< 10 years	I	acquired	RHD - mild MS	nil	nil	nil	nil	nil	ventouse delivery	nil	nil	live birth	nil	37 weeks 2 days	2.5 kg	nil
58	30 years	G4P2L2A1	< 10 years	I	Acquired	RHD - MS	nil	nil	hypothyroidis	nil	nil	ventouse delivery	nil	nil	live birth	nil	39 weeks 4 days	3 kg	nil
59	24	primi	<10 years	I	acquired	RHD - MR	nil	penidure prophylaxis , lasix	nil	GDM	nil	elective LSCS	Nil	nil	live birth	nil	38 weeks 5 days	3.7 kg	nil
60	26	G3P2L1D1	<10 years	I	acquired	MVP , AML prolapse , MR , TR	nil	nil	nil	previous LSCS	nil	emg LSCS	nil	nil	live birth	nil	37 weeks 4 days	2.7 kg	nil
61	22	primi	< 10 years	I	congenital	small VSD	nil	nil	nil	nil	nil	emg LSCS	nil	nil	live birth	nil	37 weeks	2.4 kg	nil
62	27	G2P1L0	< 10 years	I	acquired	RHD - mild MS , trivial AR	nil	nil	hypothyroidism	nil	nil	ventouse delivery	nil	nil	live birth	nil	36 weeks 2 days	2.4 kg	nil
64																			nil
63	20	primi	10-20 years	II	acquired	RHD - MR	nil	beta blockers, Anticoagulants	nil	GDM	nil	elective LSCS	nil	nil	live birth	nil	37 weeks 2 days	2.7 kg	nil
66																			
64	23	primi	< 10 years	I	acquired	RHD - AML prolapse	nil	nil	nil	GDM	nil	emg LSCS	nil	oligamnios	live birth	nil	37 weeks 1 day	2.6 kg	nil
65	27	G2P1L1	10-20 years	I	congenital	ASD	nil	nil	nil	nil	nil	ventouse delivery	nil	nil	live birth	nil	39 weeks 6 days	2.5 kg	nil
66	24	G2P1L1	<10 years	I	acquired	MS + MR	MVR done	diuretics, beta blockers , anticoagulants	nil	nil	nil	emg LSCS	nil	nil	live birth	nil	37 weeks 3 days	2.6 kg	nil
67	26 years	primigravida	< 10 years	I	congenital	ASD	ASD patch clos	nil	nil	nil	nil	forceps delivery	nil	nil	live birth	nil	38 weeks days	2.7 kg	nil
68	30	G2P1L1	<10 years	I	congenital	ASD	nil	nil	nil	nil	nil	emg LSCS	nil	IUGR	live birth	nil	37 weeks 5 days	2.4 kg	nil
69	23	primi	<10 years	I	acquired	RHD - MS	nil	nil	nil	nil	nil	forceps delivery	nil	nil	live birth	nil	36 weeks 4 days	2.54kg	nil
70	25	G2P1L1	<10 years	I	congenital	ASD	ASD patch clos	nil	nil	nil	nil	FTVD	nil	IUGR , oligamnios	live birth	nil	37 weeks 1day	2.5 kg	nil
71	27	G3P1L1D1	> 20 years	II	acquired	RHD - trivial MS	nil	penidure prophylaxis	anaemia	nil	nil	ventouse delivery	nil	oligamnios	live birth	nil	37 weeks 4 days	2.6 kg	nil
72	24 years	G2P1L1	10 - 20 years	I	congenital	VSD	nil	nil	nil	previous LSCS	nil	FT emg LSCS	nil	nil	live birth	nil	39 weeks 6 days	2.7 kg	nil
73	22	primi	10-20 years	I	congenital	ASD	ASD patch clos	nil	nil	nil	nil	elective LSCS	nil	nil	live birth	nil	38 weeks 3 days	2.7 kg	nil
74	21	G2P1L1	<10 years	IV	acquired	peripartum cardiomyopathy	nil	digoxin , beta blockers, diuretics	anaemia, hypothyroidism	previous LSCS	cardiac ICCU admission	emg LSCS	IUGR	nil	live birth	yes , PT with LBW	36 weeks	1.6 kg	nil
75	25	G2P11L1A1	10-20 years	I	acquired	RHD - AML prolapse , trivial AR	nil	nil	anaemia	previous LSCS	nil	elective LSCS	nil	nil	live birth	Niil	38 weeks	2.9 kg	nil
76	20 years	primigravida	< 10 years	I	acquired	RHD - MS	nil	nil	hypothyroidism	nil	nil	PTD	nil	nil	live birth	yes, PT with LBW	35 weeks 6 day	2 kg	nil
77	27	primi	< 10 years	I	acquired	MVP , grade I AML prolapse	nil	nil	nil	GDM	nil	emg lscs	nil	nil	live birth	nil	39 weeks 2 days	3 kg	nil
78	28	G2P1L1A1	<10 years	I	acquired	MS + MR	nil	nil	nil	nil	nil	emg LSCS	nil	nil	live birth	nil	37 weeks 2 days	2.6 kg	nil
79	22	primi	>20 years	III	acquired	Grade II MR , severe AS , LV dilated	nil	beta blockers, diuretics, digoxin, anticoagulantsnil	nil	PIH	cardiac ICCU admission	Emg LSCS	IUGR, oligamnios	nil	live birth	yes , LBW	37 weeks 4 days	1.6 kg	nil
80	22 years	primigravida	10 - 20 years	I	acquired	MR - RHD	nil	penidure phophylaxis	nil	nil	nil	PTD	oligamnios	nil	live birth	nil	35 weeks 3 days	2.2 kg	nil
81	24	G2P1L0	<10 years	II	acquired	RHD - trivial MS + MR	nil	nil	anaemia	PIH	nil	ventouse delivery	nil	IUGR	live birth	yes, LBW	38 weeks 2 days	1.5 kg	nil
82	26	G3P2L2	<10 years	I	acquired	trivial MR	nil	nil	hypothyroidism	nil	nil	ventouse delivery	nil	IUGR	live birth	LBW with respiratory d	37 weeks 4 days	2.1 kg	nil
83	21	primi	<10 years	I	congenital	calcified AS	nil	nil	nil	nil	nil	emg LSCS	Nil	nil	live birth	nil	37 weeks	2.5 kg	nil
84	24	G2P1L0	< 10 years	I	congenital	dilated RA , RV , trivial TR	nil	diuretics , beta blockers, anti coagulants	arnold chiari syndrome, l	nil	ICCU admission	elective LSCS	nil	nil	live birth	yes, PT with LBW	35 weeks	1.8 kg	nil
85	22	primi	<10 years	I	acquired	trivial AR , AML prolapse	nil	nil	nil	nil	nil	ventouse delivery	nil	nil	live birth	nil	36 weeks 3 days	2.4 kg	nil
86	19	G2A1	not known	II	not known	mild Eccentric TR	post surgery - st	diuretics, beta blockers	anaemia	PIH	nil	ventouse delivery	oligohydramnios, IUGR	nil	live birth	nil	40 weeks	2.4 kg	nil

88	26	G2P1L1	10-20 years	I	acquired	mild MS , moderate MR , AML , PML	nil	diuretis, beta blockers,anticoagulants	anaemia	nil	nil	ventouse delivery	oligohydramnios	nil	live birth	nil	37 weeks 5 days	2 kg	nil
89	28	G2P1L1A1	<10 years	I	acquired	MS + MR (RHD)	nil	penidure prophylaxis	nil	nil	nil	emg LSCS	wound infection	nil	live birth	yes, respiratory distress	37 weeks 4 days	2.9 kg	nil
90	21	G2P1L1	<10 years	I	congenital	VSD	nil	nil	nil	nil	nil	ventouse delivery	nil	nil	live birth	nil	39 weeks 2 days	3 kg	nil
91	21	primi	10-20 years	I	acquired	MR + MS ,(RHD), AS trivial	nil	nil	nil	nil	nil	emg LSCS	nil	nil	live birth	yes, respiratory distress	37 weeks 4 days	2.9 kg	nil
92	26 years	primi	10-20 years	I	acquired	MS - RHD	nil	nil	hypothyroidism , anaemi	nil	nil	forceps delivery	nil	nil	live birth	nil	38 weeks 4 days	2.8 kg	nil
93	24	G2P1L1	<10 years	I	acquired	moderate MS	nil	diuretics, beta blockers	nil	previous LSCS	nil	elective LSCS	nil	nil	live birth	nil	35 weeks 6 days	2.3 kg	nil
94	23 years	G2A1	10-20 years	I	acquired	RHD - MS + MR	nil	nil	nil	nil	nil	vacumm delivery	nil	nil	live birth	nil	36 weeks 4 days	2.4 kg	nil
95	23 years	primi	<10 years	I	congenital	ASD	nil	nil	anaemia	nil	nil	emg LSCS	nil	nil	live birth	nil	37 weeks 2 days	2.4 kg	nil
96	19 years	primigravida	10-20years	I	congenital	ASD	ASD patch clos	nil	Nil	AFLP , traumatic PPH	ICU admission	PTD	nil	nil	live birth	yes, PT with LBW	36 weeks 5 days	2.2kg	nil
97	19 years	primigravida	<10 years	I	acquired	MS+MR	nil	nil	Nil	nil	nil	FTND	nil	nil	live birth	nil	39 weeks 4 days	3.3 kg	nil
98	24 years	G2P1L1	10 years	I	acquired	AS	Post AVR	tab acitrom , inj heparin	nil	nil	nil	ventouse delivery	nil	nil	live birth	nil	39 weeks 1 day	2.6 kg	nil
99	25 years	G3P2L2	<10 years , 8 MOA	II	acquired	MS	nil	tab dytor , tab betaloc , beta blocker	nil	nil	nil	FTD	Nil	nil	live birth	nil	36 weeks 6 days	2.4 kg	nil
100	30 years	primigravida	10 - 20 years	II	acquired	severe MS	post BMV	Beta blocker, penicillin prophylaxis, lasix	nil	nil	cardiac ICCU admission	FTD	IUGR	nil	live birth	yes, LBW	36 weeks 4 days	1.8 kg	nil
101	22 years	primigravida	10 years	I	congenital	VSD	VSD closure	IE prophylaxis	nil	gest HTN	nil	emg LSCS	nil	nil	live birth	nil	37 weeks 6 days	2.9 kg	nil
102	20 years	primigravida	10 years	I	acquired	RHD - severe AR with MR	Nil	digoxin	nil	nil	nil	emg LSCS	nil	nil	live birth	nil	39 weeks 2 days	2.6 kg	nil
103	27 years	primigravida	< 10 years (3 years)	I	congenital	acyanotic CHD, large ASD, PS	NIL	diuretics	hypothyroidism	previous LSCS, gest HTN	cardiac ICCU admission	elective LSCS	nil	IUGR	live birth	yes, LBW	37 weks 6 days	2.1 kg	nil
104	21 years	G3A2	< 10 years	I	Acquired	RBBB	Nil	nil	nil	gest HTN	nil	emg LSCS	Nil	nil	live birth	nil	38 weeks 5 days	3.5 kg	nil
105	23 years	primigravida	15 days , < 10 years	I	acquired	RHD - grade II MR	nil	penidure prophylaxis	nil	nil	nil	FT ventouse delivery	nil	nil	live birth	nil	38 weeks 4 days	3 kg	nil
106	25 years	G3P2L2	3 years , < 10 years	I	acquired	RHD - severe MR with trivial TR	Nil	penidure phophylaxis	nil	nil	nil	FT ventouse delivery	nil	nil	live birth	nil	38 weeks 3 days	2.9 kg	niil
107	23 years	G2P1L1	< 10 Years , 2.5 years	I	acquired	RHD - mild MS	nil	penidure prophylaxis	nil	nil	nil	elective LSCS	nil	nil	live birth	nil	38 weeks 2 days	2.8 kg	nil
108	33 years	G2P1L0	8 months , < 10 years	I	acquired	RHD - MS	nil	anticoagulants	stroke at 1.5 MOA , vit E	nil	NIL	elective LSCS	nil	nil	live birth	nil	35 weeks 3 days	2.8 kg	nil
109	23 years	G2P1L1	3 years , < 10 years	I	congenital	acyanotic CHD, large ASD, PS	nil	beta blockers	nil	nil	nil	FTVD	nil	nil	live birth	yes , PT with LBW	36 weeks 5 days	2.2 kg	nil
110	21 years	G4P3L3	< 10 years	II	congenital	severe AS, coarctation of aorta , seere PAH	nil	beta blockers, diuretics	nil	Severe PE	cardiac ICCU admission	elective LSCS	nil	nil	live birth	yes, PT with LBW	35 weeks	1.9 kg	nil
111	29 years	G2P1L1	< 10 years	IV	acquired	RHD- MR	nil	anticoagulants	chronic HTN	nil	cardiac ICCU admission	Emg LSCS	os with increased resistance c	nil	live birth	yes, PT with LBW	33 weeks 6 days	2 kg	nil
112	22 years	primigravida	10- 20 years	I	Acquired	RHD - MR	nil	penidure phophylaxis	nil	nil	nil	emg LSCS	nil	nil	live birth	nil	39 weeks 4 days	3 kg	nil
113	23 years	primigravida	10-20 years	I	acquired	AML prolapse, MR	nil	penidure phophylaxis	hypothyroidism	nil	nil	emg LSCS	nil	nil	live birth	nil	35 weeks 5 days	3.5 kg	nil
114	24 years	G3P2L2	< 10 years	IV	acquired	peripartum cardiomyopathy	nil	diuretics , beta blockers, anti coagulants	nil	Severe PE	cardiac ICCU admission	emg LSCS	nil	nil	live birth	nil	38 weeks 2 days	2.8 kg	nil
115	36 years	G2P1L1	10-20 years	II	acquired	RHD - MS	Post MVR	beta blockers	nil	nil	nil	emg LSCS	nil	nil	live birth	nil	39 weeks	2.6 kg	nil
116	26 years	primigravida	< 10 years - 5th MOA	I	congenital	large ASD	nil	beta blockers, diuretics	nil	nil	nil	FT forceps delivery	nil	nil	live birth	nil	39 weeks 5 days	3.4 kg	nil
117	27 years	primigravida	10 year	I	acquired	RHD - MS + MR	post MVR	Beta blockers , anticoagulants	hypothyroidism , epileps	Rh negative pregnancy	nil	PT elective LSCS	nil	nil	live birth	PT with LBW, Phototh	35 weeks 5 days	1.4kg	Nil
118	22 years	primigravida	< 10 years . 6th MOA	I	congenital	large ASD	nil	nil	nil	nil	nil	PTD	nil	nil	live birth	yes , PT with LBW	35 weeks 1 day	2kg	nil
119	32 years	primigravida	< 10 years	I	congenital	ASD	pericardial patch	nil	nil	Rh negative pregnancy	nil	FT elective LSCS	nil	nil	live birth	nil	38 weeks 4 daays	2.4 kg	nil
120	20 years	primigravida	< 10 years , 6th MOA	I	congenital	grade I - MVP eccentric MR	nil	nil	Nil	nil	nil	FT emg LSCS	nil	nil	live birth	nil	40 weeks 1 day	2.5 kg	nil
121	25 years	G2P1L1	10 years	I	congenital	ASD	ASD closure	nil	nil	nil	nil	FTD	nil	nil	live birth	nil	39 weeks 3 days	2.8 kg	nil
122	23 years	G2P1L1	10 - 20 years	I	Congenital	fenestrated ASD	nil	diuretics , digoxin	nil	previous LSCS	nil	FT emg Lscs	nil	nil	live birth	nil	39 weeks 2 days	3.8 kg	nil
123	26 years	primigravida	< 10 years	IV	acquired	PPCM	nil	digoxin, diuretic, beta blocker, anticoagulant	hypothyroidism	PIH	cardiac ICCU admission	FT emg LSCS	nil	nil	live birth	nil	38 weeks 6 days	2.9 kg	nil
124	26 years	G4P3L3D1	< 10 years	IV	acquired	PPCM	nil	Beta blockers , anticoagulants	nil	nil	cardiac ICCU admission	PTD	nil	nil	FSB	nil	21 weeks 2 days	700 grms	mortality
125	24 years	G2A1	> 20 years	IV	acquired	RHD - severe MS	post MVR	Beta blockers , anticoagulants	nil	nil	cardiac ICCU admission , CCF	PTD	oilgamnios	IUFD	MSB	nil	34 weeks 2 days	1kg	nil
126	22 years	primigravida	10 - 20 years	I	acquired	RHD - MS (mild)	nil	nil	hypothyroidism	nil	nil	FTD	nil	nil	live birth	nil	39 weeks	2.7 kg	nil
127	26 years	G4P2L2A1	< 10 years	IV	acquired	PPCM	nil	digoxin,diuretics, beta blockers, anticoagulants	nil	previous LSCS	cardiac ICCU admission	FT emg LSCS	nil	nil	live birth	nil	36 weeks 3 days	2.7 kg	nil
128	28 years	G2P1L1	< 10 years	II	acquired	RHD - MS	nil	penidure prophylaxis	nil	nil	nil	FTD	nil	nil	live birth	nil	37 weeks 2 days	2.7 kg	nil
129	26 years	primigravida	< 10 years	I	congenital	ASD	Nil	nil	nil	nil	nil	FTD	nil	nil	live birth	nil	38 weeks	2.4 kg	nil
130	27years	G3P2L2	10 years	I	acquired	RHD - MR III	nil	penidure prophylaxis	nil	nil	nil	FTVD	nil	nil	live birth	nil	38 weeks	3.1 kg	nil