



Pregnancy and Delivery with Cardiac Disease in Dr. Soetomo Hospital 2018

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ABSTRACT

Background: Cardiac disease is one of the non obstetric problems causing mortality both in pregnancy and labor due to the complications. Preventions for the complications have not been implemented, thus the number of patients which have cardiac disease with complications and perinatal outcome with low birth weight is still high. Objective : To identify maternal and neonatal outcome of pregnant women with cardiac disease in dr. Soetomo Surabaya hospital in 2018. Method: Descriptive retrospective study using medical records in dr. Soetomo Surabaya hospital 2018. Result: We found 1433 pregnancy cases with 51 (3,6 %) patients were having cardiac disease and included in this research. The most common maternal complication was pulmonary hypertension 16 cases. A dead case was found 1 case (1,9 %) with eissenmenger syndrome. We found the perinatal outcome of 30 babies (58.8%) born with a weight of 2500 gram and under. There are 7 patients with cardiac disease that have been corrected (13,7%). Among those 7 patients, 6 had a perinatal outcome with a birth weight of more than 2500 gram. Conclusion : Most pregnant patients with cardiac disease in dr. Soetomo Surabaya hospital 2018 are already having some complications with perinatal outcomes of low birth weight. Therefore, management of cardiac disease in pregnancy to prevent complications by means of preconception counseling, good antenatal care, and appropriate referrels are still needed to improve the quality of maternal and neonatal outcomes.

Introduction

Cardiac disease is a non-obstetric problem that lead to morbidity and mortality for both maternal and fetal due to the complications of cardiac function disorder (Ruys, *et al.*, 2013). In RSUD Dr. Soetomo Surabaya period 2014-2016, the second biggest causes of maternal death is cardiac disease, and the most cases happen is Eissenmenger syndrome.

Some studies report that the maternal outcome of cardiac disease in pregnancy is fetal growth restriction. By having an overview for maternal and fetal outcome in

pregnancy with cardiac disease, the preventions of complication in pregnancy with cardiac disease are expected, also understand how to identify the Antenatal Care for patients with cardiac disease in pregnancy to improve the quality of maternal and fetal outcome (Fernandez, *et al.*, 2010) . The objective of this study is to give an overview on maternal and fetal outcome in patients with cardiac disease in pregnancy in RSUD Dr. Soetomo 2018.

Methods

This research was a descriptive retrospective research which was located in

dr. Soetomo Hospital in 2018 by using medical records. The samples were all mothers with heart disease. The inclusion criteria in this study were pregnant women with heart disease. While the exclusion criteria were pregnant women with hypertension, preeclampsia and mothers with incomplete data.

The investigated characteristics of the mothers were age, parity, arrival status, origin area of referrals, antenatal care (ANC), indication of termination, and the way of delivery. Obtained maternal outcomes were cardiac complications, obstetric complications, and maternal mortality. While the Obtained fetal outcomes were birthweight, Apgar score, complications and fetal mortality.

Result

Search data on medical records was succeeded in getting 1433 women who Gave birth in 2018. Some 67 of them were pregnant women with heart disease. We sorted them According to inclusion criteria. The total number of pregnant women who met the criteria were 51 women.

Table 1. Distribution of pregnant Patients with heart disease in 2018 based on age Patients

Characteristics	amount	Percentage (%)
Mean age (years old)	28.6	
Youngest (years old)	20	
Oldest (years old)	44	
< 20 years old	0	0
20-30 years old	31	60.8 %
> 30-40 years old	18	35.3 %
> 40 years old	2	3.9 %
Gestational Age		
Multigravida	28	54.9%
Primigravida	23	45.1%

Source: secondary data (Medical Record on Emergency Departement and Policlinic of RSUD Soetomo)

At the time of delivery, gestational age of <20 weeks were 1 case (1.9%), 20 weeks were less than 37 weeks were 24 cases (47.1%) and > 37 weeks were 26 cases (51.0 %).

Table 2. Prevalence of Heart Disease in Pregnancy at Dr. Regional Soetomo General Hospital in 2018

Characteristics	Total
Had heart disease	
Yes	51(3.6%)
No	1382(96.4%)
Type of Heart Disease	
Congenital	22(43.1%)
Acquired	13(25.5%)
PPCM	16(31.4%)

Source: secondary data (Medical Record on Emergency Departement and Policlinic of RSUD Soetomo)

The most common congenital heart disease was ASD, 13 Patients (25.5%), Followed by 4 Patients of VSD (7.8%), 2 Patients of PDA (3.9%), 1 patient had TOF (1.9%), and 1 patient with ASD and VSD (1.9%) and 1 patient with PDA and VSD (1.9%). For acquired heart disease, RHD was dominated by 13 Patients (25.5%) and coronary heart disease was not obtained during 2018. The number of pregnant women with RHD during 2018 were 13 women. Involvement of more than one valve (multiple valve), there were 11 cases (84.6%) while single valve were only 2 cases.

The mitral valve is a valve that is often found to have damage in RHD at pregnancy women. From our data there were 7 cases of mitral regurgitation (53.8%), 2 cases of mitral stenosis (15.4%) and 2 cases of mitral stenosis-regurgitation (15.4%).

Table 3. Cardiac and Obstetric Complications in Pregnant Patients with Heart Disease at Dr. Soetomo Regional General Hospital in 2018

characteristic	Amount
cardiac complication	
DCFC	15
pulmonary edema	6
Eisenmenger syndrome	4
PHT	16
AF	2
obstetric complication	

PROM	4
placenta Previa	1
BSC	4
Obesity	8
Severe Oligohydramnios	7
fetal malpresentation	5
fetal Distress	10
SC indication	
placenta Previa	1
BSC	4
Class III obesity	8
Severe oligohydramnios	7
fetal distress	10
fetal malpresentation	5
perinatal complication	
perinatal mortality	9
low Birthweight	18
IUGR	6
Preterm	24
Abortion	1

Source: secondary data (Medical Record on Emergency Departement and Policlinic of RSUD Soetomo)

In Patients with acquired cardiac disease, ASD defects <2 cm were Obtained in 6 cases (42.8%), > 2 cm in 7 cases (50%), post ASO in 1 case (7.1%). VSD \leq 1cm defects were 2 cases (33.3%), VSD defects > 1 cm were 4 cases (66.7%). Complications of ASD defects > 2 cm that occur include IPM were 5 cases, pulmonary edema was 1 case, DCFC was 1 case, Eisenmenger were 3 cases. Whereas ASD defects <2 cm included HDI were 2 cases and DCFC was 1 case. Complications of VSD defects > 1 cm include HDI was 1 case, DCFC was 1 case, eisenmeinger was 1 case. Complications of VSD defect \leq 1 cm were 2 cases include PHT, DCFC was 1 case.

Based on the mode of delivery in pregnant patients with heart disease, predominantly labor perabdominam 30 cases (59%) and vaginal many as 20 cases (39%) and least curettage 1 case (2%). Indications of SC for heart disease in pregnancy were dominated by fetal distress in 10 cases, Followed by the class III obesity were 8 cases, severe oligohydramnios were 7 cases, fetal malpresentation were 5 cases, BSC were 4 cases, Eisenmenger syndrome were 4 cases, Pulmonary edema were 2 cases, placenta previa was 1 case, IUGR were 6 cases, and abortion was 1 case. From birth

perabdominam, who performed the action B-Lynch as much as 6 cases (22%), while that does not do the B-Lynch 24 cases (78%). Of vaginal delivery, which do painless labor as many as 13 cases (76%), do not painless labor as much as 4 cases (24%). From persainan vaginal, spontaneous back of the head 7 cases (13.7%), while those with forceps extraction of 13 (25.5%).

Table 4. Pregnancy with Heart Disease in 2018 based on Antenatal Care (ANC) and referral

characteristic	Amount
Community Healt Center	1 (1.96%)
PH 1	16 (31.37%)
Hospital inside of Surabaya city	5 (9.80%)
Hospital outside of Surabaya city	23 (45.09%)
Come by Her self	6 (11.76%)

Source: secondary data (Medical Record on Emergency Departement and Policlinic of RSUD Soetomo)

From all cases of pregnancy with cardiac disease in RSUD dr. Soetomo, mostly are non booked case (NBC) which is 18 caes (35,5 %). The booked case from Policlinic are 16 cases (31,37%), and the last 17 cases (33%) are from outside RSUD dr. Soetomo Surabaya.

Based on the ANC of pregnant Patients with complications of cardiac diseases, there were 4 cases (7.8%) in Patients who had never had the ANC were not Obtained DCFC > class II, it was Obtained DCC > class II as many as 1 case (1.9 %), with the number of pregnant Patients with heart disease were that the ANC had never had as many as five cases (9.8%). In Patients with ANC as many as 1-4 times during pregnancy, there were no complications of DCFC > class II in 24 cases (47.0%), while Reviews those who Obtained DCFC complications > class II were 6 cases (11.8%). The total number of pregnant Patients with cardiac disease, with 1-4 times Reviews their ANC during pregnancy as many as 30 cases (58.8%). Patients with ANC > 4 times who did not have DCFC > Class II complications were 14 cases (27.5%), while Reviews those who Obtained DCFC complications > Class II

were 2 cases (3.9%). The total number of ANC Patients > 4 x who did not get DCFC class II were 14 cases (27.5%), while Reviews those who Obtained DCFC class II were 2 cases (3.9%). While the total number of Patients with ANC > 4 times were 16 cases (31.3%). Of all 51 Patients, 42 cases (82.4%) were found in DCFC class II and 9 cases (17.6%).

Based on ANC correlation of pregnant patients with PHT complications, there were 3 patients (5.9%) who had never had ANC and did not have complications of PHT, while severe PHT were 2 cases (3.9%). The number of patients who had never had ANC were 5 cases (9.8%). Patients who had 1-4 times of ANC, and did not have complications of PHT were 19 cases (37.6%), mild PHT were 2 cases (3.9%), moderate PHT were 4 cases (7.8%), severe PHT were 5 cases (9.8%). The total number of patients with ANC were 30 cases (58.8%). Patients with ANC > 4 times and did not have PHT were 12 cases (23.5%), mild PHT was 1 case (1.9%), moderate PHT were 2 cases (3.9%), severe PHT was 1 case (1.9%). Total patients with ANC > 4 times were 16 cases (31.3%).

There is one case of death of pregnant patients with heart disease in 2018 with secundum ASD secundum R to L shunt + Severe PHT + Eisenmenger Syndrome + moderate TR + mild PR. The patient is referred from RSUD Nganjuk and never

come to RSUD dr. Soetomo Surabaya before.

There are 7 pregnant Patients with heart disease, post-correction in 2018, that have a better maternal and perinatal outcome compared with uncorrected cardiac disease in pregnancy (Yap, *et al.*, 2010).

Most babies with heart disease mother was born at term > 2500 g were 21 cases (41.2%). Babies weighing 1501-2500 g of 20 cases (39.2%), while from 1001 to 1500 g as 6 cases (11.8%) and <1000 g of as much as 4 cases (7.8%)

Fetal outcomes for pregnant Patients with heart disease were mostly mild or without asphyxia asphyxia in 38 cases (74%). While moderate asphyxia were 9 cases (18%), severe asphyxia was 1 case (2%), IUFD were cases (6%).

Discussion

Based on the number of parity, cardiac disease found in multigravida more than primigravida. It shows that family planning hasn't working optimally in Indonesia. Most patients diagnosed with cardiac disease in the next pregnancy, because the in the first pregnancy, no signs and symptoms are shown and there is no complications. In the next pregnancy signs and symptoms are shown because maternal adaptation is not optimal (Gumilar and Pradyani, 2020).

Table 5. Characteristics of Pregnant Patients with Post Correction Heart Disease in 2018

No / name / Age (years old)	parity	Type of Heart Disease	Valve involvement	Cardiac complication	Obstetric complication	MOD	Fetal outcomes	Gestational age	Contraception	ANC
1 Mrs. S / 30	Multi	Post MVR	Severe <u>wi</u> MS	Mild PHT	Category II NST	SC	P / 3000 g / 50 cm / USA 8-9 L / 3300 g / 49 cm / USA 8-9	39/40	Sterilizati on IUD	PH1> 4x
2 Mrs. K / 28	Primi	Post MVR bioprosthetic	Severe <u>wi</u> MS	Increased tension of the mitral valve, Mild IPM, AF	-	SC	L / 3000g / 51cm / USA 8-9	38/39	IUD	PH1> 4x
3 Mrs.P / 30	Multi	Post MVR mechanical valve prosthetic	Severe <u>wi</u> MS	Mild IPM, AF	-	FE + painless labor	L / 2900g / 49 cm / AS8-9	38/39	IUD	PH1> 4x
4 Mrs.I / 22	Primi	Post DVR	PDA	Mitral + Aorta (MS + AR)	-	FE + painless labor	P / 3600 g / 51 cm / USA 8-9	37/38	IUD	PH1> 4x
5 Mrs.E / 24	Multi	Post correction TOF	TR, TOF	-	-	FE + painless labor	P / 3400 g / 50 cm / USA 5-7	38/39	IUD	RS wiliam booth
6 Mrs.Pi / 22	Primi	Post ASO	ASD L to R shunt	-	fetal distress	SC + B-Lynch	P / 2200g / 40cm / ASO / meconial	38	IUD	PH1> 4x
7 Mrs.N / 35	Multi	Post MVR	Severe ai MS	-	IUFD	Pliers muxeoux + painless labor		34/35	-	Bangkalan Hospital

Source: secondary data (Medical Record on Emergency Departement and Policlinic of RSUD Soetomo)

Most of the pregnant patients with cardiac disease in RSUD dr. Soetomo 2018 are having cardiac complications. DCFC and PHT is the most complications cases in pregnancy, PHT is 16 cases and DCFC 15 cases. A study conducted in Vietnam in 2014-2016 by Thang Nguyen Manh shows that the most cardiac complication in pregnancy is arrhythmia, which is 55 cases among 284 patients with cardiac disease (19,4 %) (Nguyen Mahn, *et al.*, 2019). ANC frequency on patients with PHT and DCFC is not significantly associated. It shows that the quality of ANC needs to consider as associated with the prevalence of cardiac and obstetric complications. During pregnancy, the regularity of ANC in Policlinic is needed to monitor the maternal and fetal condition.

The pregnant patients with cardiac disease post correction shown low in number, among 51 patients, there are only 7 patients are being corrected. The fetal outcome of 6 among 7 patients that being corrected is good, with fetal birth weight is more than 2500 g. It shows that cardiac correction is significant to decrease the complications in maternal and fetal (Bills, *et al.*, 2018). Otherwise in primigravida patients with cardiac disease that are not allowed to be pregnant before correction shows that preconceptional counseling is not optimal. Preconceptional counselling is very important in patients with among reproductive age with cardiac disease (Iserine, 2001). Counseling are given as needed for the patient to know the risk on the pregnancy. Informations needs to be given completely for the patients to understand the prognosis of the pregnancy and the baby (Gumilar and Pradyani, 2020). Perinatal outcome found 30 babies (58,8 %) are born with low birth weight ≤ 2500 g, it also found in the study conducted in Vietnam period 2014-2016 by Thang Nguyen Manh, the perinatal outcome IUGR found 26 among 284 cases (9,2%) (Nguyen Manh, *et al.*, 2019).

A death case is found in patients with cardiac disease in 2018 due to

complications which is Eisenmenger syndrome (Regitz-Zagrosek, *et al.*, 2018). The patient is referred from outside Surabaya and have never come to Policlinic in RSUD dr. Soetomo Surabaya. The patients came in a poor conditions and having an advanced underlying disease is the causes of the death (Wolfe, *et al.*, 2019). Late referral shows that the ANC and management of patients with cardiac disease is not optimal yet (Gumilar and Pradyani, 2020).

Conclusion

Most of the pregnant patients with cardiac disease in RSUD dr. Soetomo Surabaya in 2018 are having cardiac complications with perinatal outcome low birth weight. Thus, the integrated management needs to be conducted since the preconceptional care until post partum to prevent the complications by preconceptional counseling, screening, antenatal care, and referral on time to improve the maternal and fetal outcome.

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