Original Article

Safety of Abdominal vs. Vaginal delivery in women with cardiac diseases

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Objective: To determine the safety of vaginal delivery among cardiac pregnant women as compared to lower segment cesarean section (LSCS) at our institution.

Methodology: This case-control study was conducted at the Departments of Obstetrics & Gynecology, Yusra Medical & Dental College, Islamabad, Pakistan from January 2008 to December 2009. A total of 176 pregnant women were included through purposive sampling technique and interviewed by using pre-tested structured questionnaire. 86 pregnant women were taken as cases who had acquired or congenital cardiac diseases and 90 pregnant women as controls without cardiac problems. Data was collected on demographic features, obstetrical and medical evaluation.

Results: Out of 86 cardiac pregnant women, 62 (72%) had spontaneous vaginal delivery (SVD) and 24 (28%) underwent LSCS either due to obstetrical or cardiac reasons. In control group, out of 90 non-cardiac pregnant women, 78 (87%) had SVD and 12 (13%) had LSCS. In cardiac pregnant women, with SVDs only 2 (3.2%) had primary post partum hemorrhage (PPH) of milder degree, which was treated with uterine bimanual massage. While LSCS in the cardiac pregnant women, 7 (24%) pregnant women had primary PPH out of which 3 were treated with simple measure like infusion Syntocinon, Misoprostol rectally, while 1 patient required blood transfusion and one patient had to undergo hysterectomy due to uncontrollable hemorrhage while 1 patient had secondary PPH and was treated by antibiotics and blood transfusion.

Conclusion: It is concluded that vaginal delivery is the safest and preferred route of delivery in pregnant women with cardiac diseases. (Rawal Med J 2013;38: 413-416).

Key words: LSCS, Spontaneous vaginal delivery, SVD, PPH, pregnant cardiac patients.

INTRODUCTION

Cardiovascular diseases arise from 0.2% to 4% in all pregnancies in the industrialized world.[1] Cardiac disease in the pregnant patient can present challenges in cardiovascular and maternal-fetal management. However, there is a lack of evidence-based guidelines to assist in planning the management of affected pregnancies.[2] Vaginal delivery is always recommended when the patient is hemodynamically stable. Cesarean section (CS) has the advantage of avoiding the physical stress of labor, but it is not free from hemodynamic consequences related to anesthesia, assisted ventilation and the increased risk of venous thromboembolism.

Most women with heart disease can be allowed to go into spontaneous labor.[3] Sometimes it may be preferable to induce delivery in women with heart failure or with progressive aortic dilatation and patients on anticoagulants. Several studies show that CS is performed more often in women with heart disease than in a healthy population.[4,5] Situations in which primary CS is considered are patients on oral anticoagulants, Marfan syndrome with diameter of the ascending aorta >45 mm, acute or chronic dissection, and acute heart failure.[6] Vaginal delivery usually carries the lowest risk of complication in women with cardiac disease and is therefore recommended in most cases.[7] Cesarean section, even under the most vigilant condition is associated with an increased amount of blood loss (twice of that during vaginal delivery) and an

increased risk of wound/uterine infection and post-operative thrombophlebitis[8] The aim of this study was to determine the safety of vaginal delivery in cardiac pregnant women as compared to LSCS.

METHODOLOGY

This case-control study was conducted at the Departments of Obstetrics & Gynecology, Yusra Medical & Dental College, Islamabad, Pakistan from January 2008 to December 2009. A total of 176 pregnant women were included through purposive sampling technique and interviewed by using pre-tested structured questionnaire. The women were enrolled in the study who presented in the cardiology or obstetrics out patient department (OPD) during pregnancy after taking informed consent. 86 pregnant women were taken as cases who had acquired or congenital cardiac diseases and 90 pregnant women as controls without cardiac problems. Those who were hemodynamically unstable and had associated pregnancy induced hypertension and diabetes were excluded.

The data was collected from pregnant women during pregnancy such as demographic features, past medical & obstetrical history, mode of delivery, pregnancy outcome and postpartum hemorrhage. Post partum hemorrhage, which required intervention within 24 hours of delivery and 6 weeks post partum were also noted, and this was taken as a main out come measure to ascertain the safety of mode of delivery. Cardiac disease was classified according to New York Heart Association (NYHA), echocardiographic findings, and current medical & surgical cardiac treatment. Women with cardiac diseases were sub-divided into two sub groups: Group one those who underwent vaginal delivery and Group two those who underwent LSCS.

RESULTS

The study included 176 pregnant women, out of which 86 pregnant women had acquired or congenital cardiac disease and 90 pregnant women were taken as controls without cardiac disease. Table 1 shows the demographic profile of study population.

Table 1: Demographic Profile of Pregnant women with cardiac diseases (N=86).

Variables	Group 1- vaginal delivery (n=62)	Group 2 LSCS (n=24)
Maternal age 20-30 years	49	16
31-39 years	13	08
Primi gravida	34	13
Multi gravida	28	11
NYHA Functional Class		
NYHA I	40	15
NYHA II	22	09
Acquired Heart Disease	62	24
Congenital Heart Disease	-	-

Out 86 cardiac pregnant women, 71 (82.5%) had valvular heart disease, 10 (12%) had arterial or ventricular sepals defects and 5 (6%) had isolated arrhythmias i.e. atria fibrillation or supra ventricular tachycardia.

Out 86 patients with heart disease, 62 (72%) had vaginal delivery and 24 (28%) had LSCS.

Table 2. Modes of delivery & PPH in Cases vs. Controls.

Variables	Control group of non cardiac pregnant women N=90	Cases of cardiac pregnant womenN=86	P-values
SVD	78(87%)	62(72%)	0.001
LSCS	12(13%)	24(28%)	0.001
Primary PPH	2(2%)	7(8%)	0.000
Secondary PPH	Nil	01(1%)	0.01

In cardiac pregnant women who had vaginal delivery (n=62), two patients had postpartum hemorrhage and were treated by bimanual uterine massage, infusion syntocinon and per rectal administration of misoprostol.

In cardiac pregnant women who underwent LSCS (n=24), 5 patients had PPH in first 24 hours i.e. primary PPH, 4 of them were treated with uterine massage and infusion syntocinon while 1 patient did not respond to these measures and life saving hysterectomy had to be performed. One patient had PPH after 2 weeks i.e. secondary PPH and was treated with administration of intravenous antibiotics and blood transfusion (Table 2).

Table 3: Primary and Secondary PPH in cardiac pregnant women N = 86

Postpartum Hemorrhage	Group 1 Vaginal delivery (n=62)	Group 2 LSCS (n=24)	P-value
Primary PPH	02 (3.2%)	05 (20%)	0.000
Secondary PPH	0	01(4%)	0.01

In control group (n=90), 78 (87%) had SVD while 12 (13%) had LSCS (Table 2). The findings turn out statistically significant on application of chi-square test. Most significant (p=0.001) indication for LSCS was fetal distress in both groups. Table 3 shows that primary and secondary PPH is more frequent and statistically significant (p=0.000) in LSCS in cardiac pregnant women.

DISCUSSION

Traditionally, LSCS was regarded as the mode of delivery of choice for high-risk patients, but growing experience in this field has now made this advice appear controversial. This study was an effort to establish the safety of mother and fetus regarding the mode of delivery in a pregnancy complicated by heart disease. It was observed that 25% of the women who had LSCS had PPH as compared to only 3.2% in the vaginal delivery group.

Thus concluding that under the same condition in patient with similar functional class (NYHA I/II) and in ideal environment under supervision of most experienced staff vaginal delivery is safe choice in these patients whenever possible. Higher LSCS rate is in fact associated with an increased overall risk of adverse outcomes (including mortality) for the mother and perinatal complications and maternal mortality are mostly associated with NYHA III/IV symptoms.[9,10]

Some research suggests that patients with NYHA class I and II symptoms are suitable for vaginal delivery and for most of NYHA III and IV patients a trial of labor is safe with expedited delivery under good analgesic control as dictated by obstetric needs,[11,12] the findings of present study are in line with these studies. The limitation of our study was that the risk of pregnancy associated death wasn't addressed and a statistical estimate of this outcome should be given to the woman and her family along with the emphasis on the uncertainty of prediction, as there is 50, 50% chances of survival and death.

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Conception and design: Dr Naila, Dr Sadaf, Dr Farah
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