

**GENERAL ANESTHESIA VERSUS REGIONAL ANESTHESIA
FOR PATIENTS WITH PERIPARTUM CARDIOMYOPATHY
UNDERGOING ELECTIVE CAESAREAN SECTION**

Thesis

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ANESTHESIOLOGY

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٢٠١٠

رَبِّ أَوْزَعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ
الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَى وَالِدَيَّ
وَأَنْ أَعْمَلَ صَالِحًا تَرْضَاهُ
وَأَدْخِلْنِي بِرَحْمَتِكَ
فِي عِبَادِكَ الصَّالِحِينَ

صدق الله العظيم
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List Of Abbreviations

ABP	Arterial blood pressure
ASA	American society of anesthesiologist
AV	Arterioventricular
BNP	Brain natriuretic peptide
CHF	Congestive heart failure
CRP	C-reactive protein
CS	Caesarean section
CSA	Continuous spinal anesthesia
CSEA	Combined spinal epidural anesthesia
CVP	Central venous pressure
ECG	Electrocardiogram
EF	Ejection fraction
ETT	Endotracheal tube
EVE	Epidural volume expansion
FHR	Fetal heart rate
GA	General anesthesia
HR	Heart rate
i.v	Intravenous
ICU	Intensive care unit
IgG	Immunoglobulin
INR	International normalized ratio
IVIG	Intravenous immunoglobulin
LBW	Low birth weight
LEEF	Left ventricular ejection fraction
LMWH	Low molecular weight heparin

LVEDD	Left ventricular end diastolic diameter
LVFS	Left ventricular fraction shortening
LVSWI	Left ventricular stroke work index
MABP	Mean arterial blood pressure
NIBP	Non-invasive blood pressure
NYHA	New York heart association
PAEDP	Pulmonary artery end-diastolic pressure
PAP	Pulmonary artery pressure
PCWP	Pulmonary capillary wedge pressure
PET	Pre-edamsia
PPCM	Peripartum cardiomyopathy
PT	Prothrombin time
PTT	Partial thromboplastin time
RA	Regional anesthesia
TNF-α	Tumor necrosis factor- α
Yrs	Years

INTRODUCTION

Peripartum cardiomyopathy is a clinical entity that is associated with high maternal morbidity and mortality. It is defined by the following four criteria:

1. Development of cardiac failure in the last month of pregnancy or within five months of delivery;
2. Absence of identifiable cause for the heart failure;
3. Absence of recognizable heart disease prior to the last month of pregnancy;
4. Left ventricular systolic dysfunction demonstrated by echocardiographic criteria

(Pearson et al., 2000)

The incidence of peripartum cardiomyopathy is variable, ranging from 1:1300 to 1:10000 pregnancies. Advanced maternal age, multiparity, twin births, preeclampsia and black race are known risk factors. The etiology of peripartum cardiomyopathy remains unknown but viral, autoimmune or idiopathic myocarditis is highly suggested. The reported mortality figures ranges from 20-50% and the usual causes of death are progressive heart failure,

arrhythmias, or thromboembolism (*Lampert and Lang, 1990*).

The anesthetic management for Cesarean delivery in patients with idiopathic dilated cardiomyopathy is challenging, since patients may be hemodynamically unstable. Goals during the management of anesthesia in patients with idiopathic dilated cardiomyopathy include; avoidance of drug-induced myocardial depression, maintenance of normovolemia, and prevention of increased ventricular afterload (*Hanson, 1989*).

These goals may be achieved with either general or regional techniques. General anesthesia can be safe when the abrupt changes associated with laryngoscopy and intubation, as well as suction and extubation, are partially blunted by the appropriate choice of pharmacological agents and anesthetic technique (*Mangano, 2002*).

Regional anesthesia may be an alternative to general anesthesia in selected patients with idiopathic dilated cardiomyopathy, especially when a well titrated regional technique is used (*Stoelting and Miller, 2000*).

Combined spinal-epidural anesthesia (CSEA) is a useful technique by which a spinal block and an epidural catheter are placed simultaneously. This technique is growing in popularity because it combines the rapid onset, dense block of spinal anesthesia with the flexibility afforded by an epidural catheter, because the catheter can be used to prolong a block that is too short, extend a block that is too low, or provide postoperative analgesia (*Stienstra et al., 1999*)

AIM OF THE WORK

The aim of this work is to evaluate and compare risks and benefits of general anesthesia versus combined spinal epidural anesthesia as two different anesthetic techniques in management of patients with idiopathic peripartum cardiomyopathy scheduled for elective caesarean section.

PERIPARTUM CARDIOMYOPATHY

Heart failure during pregnancy was recognized as early as 1849, but it was first described as a distinctive form of cardiomyopathy only in the 1930s. In 1971, Demakis et al described 27 patients who presented during the puerperium with cardiomegaly, abnormal electrocardiographic findings, and congestive heart failure, and named the syndrome peripartum cardiomyopathy (*Radhakrishnan, 2009*).

Peripartum cardiomyopathy (PPCM) is a rare life-threatening disorder that is diagnosed within the final month of pregnancy or within 6 months after delivery in previously healthy women. The heart muscle becomes weak and cannot pump blood efficiently. Decreased heart function affects the lungs, liver, and other body systems (*Radhakrishnan, 2009*).

The European Society of Cardiology, recently defined peripartum cardiomyopathy as a form of dilated cardiomyopathy that presents with signs of heart failure in the last month of pregnancy or within 6 months of delivery (*Elliot et al., 2008*).