

Anesthetic management of peripartum collapse

Essay

*Submitted for partial fulfillment of master degree
in Anesthesiology*

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2010

المعالجة التخديرية للهبوط الشديد
بالدورة الدموية للسيدات الحوامل أثناء الولادة

رسالة
توطئة للحصول على درجة الماجستير
في التخدير

مقدمة من

الطبيبة/ ليليان نادر جرجس بقطر
بكالوريوس الطب والجراحة
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Acknowledgement

First and foremost thanks almighty GOD, the most merciful and kind for helping throughout this work to be completed in this form.

*I would like to express my deepest gratitude & appreciation to **prof. Dr./Gehan fouad kamel, professor of anesthesia & intensive care, faculty of medicine, Ain shams university** who supervised this study & provided me the finest details & rules to write this fruitful essay. Also she taught me how to listen & respect the small points before the big ones. It's a great honor to work under her guidance & supervision.*

*I am deeply grateful & thankful to **prof. Dr./Fahmy saad latif, assistant professor of anesthesia & intensive care, faculty of medicine, Ain shams university** for his constant support, extreme patience, valuable advices & remarks as well as providing me with precious text books to help me to intensify this work. Many thanks to the great teacher who taught me a lot.*

*My deep gratitude goes to **Dr./Sherif george anes, lecturer of anesthesia & intensive care, faculty of medicine, Ain shams university** for his effort & updated knowledge. He taught me how to gather scientific data from different books & updated papers.*

Special words for my lovely family (my mother, my father, my brother & my husband) for their tenderness, love, care & encouragement whom without, I could not probably finished this essay.

✍ Lilian nader girges



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List of Abbreviations

Abbreviation	Meaning
kcal	kilocalorie
mOsm/kg	Milli-osmole per kilogram
L	Liter
mL	Milliliter
dL	Deciliter
mg/dL	Milligram per deciliter
mL/min	Milliliter per minute
cm H ₂ O	Centimeter water
PGI ₂	Prostaglandin I ₂ or prostacyclin
mmHg	Millimeter mercury
FRC	Functional residual capacity
PaO ₂	Arterial partial pressure of oxygen
mmol/L	Millimole per liter
PaCO ₂	Arterial partial pressure of carbon dioxide
g/dL	Gram per deciliter
HCG	Human chorionic gonadotropin hormone
MAC	minimum alveolar concentration
CSF	cerebrospinal fluid
ARDS	Adult respiratory distress syndrome
ALI	Acute lung injury
Pao ₂ /FIO ₂	Arterial partial pressure of oxygen to the inspiratory fraction of oxygen ratio
ICU	Intensive care unit
TNF	Tumor necrosis factor
IL	Interleukin
Raw	Airways resistance
BNP	Plasma brain natriuretic peptide
Pg/ml	Picogram per milliliter
PEEP	Positive end-expiratory pressure
Spo ₂	Saturation of oxygen in arterial blood
ABG	Arterial blood gases



DIC	Disseminated intravascular coagulation
SP-B	Surfactant protein B
ACE	Angiotensin converting enzyme
Vd/Vt	Ratio of alveolar dead space to tidal volume of the lung
CPK	Creatine phosphokinase isoenzyme
SIV	Swine influenza virus
S-OIV	Swine-origin influenza virus
CDC	Centers for disease control & prevention
PPCM	Peripartum cardiomyopathy
LVEF	Left ventricular ejection fraction
HF	Heart failure
RHD	Rheumatic heart disease
MS	Mitral stenosis
MR	Mitral regurgitation
LV	Left ventricle
AI	Aortic insufficiency
CPB	Cardio-pulmonary bypass
AS	Aortic stenosis
TR	Tricuspid regurgitation
CVP	Central venous pressure
PS	Pulmonary stenosis
MI	Myocardial infarction
ACR	Acute coronary syndrome
CK-MB	Creatine kinase-MB
AFLP	Acute fatty liver of pregnancy
HELLP	The syndrome of hemolysis, elevated liver function tests & low platelets
LDH	Lactate dehydrogenase
PT	Prothrombin time
AST	Aspartate amino transferase
ALT	Alanine amino transferase
Mm³	Cubic millimeter
HUS	Hemolytic uremic syndrome
MRI	Magnetic resonance imaging
CT	Computerized tomography



GABA	Gamma amino butyric acid
INR	The international normalized ratio
ACOG	The american college of obstetrics & gynecology
DKA	Diabetic ketoacidosis
TSH	Thyroid stimulatind hormone
µg/dL	Microgram per deciliter
SCTA	Spiral CT angiography
MRA	Gadoliniumenhanced magnetic resonance angiography
AFE	Amniotic fluid embolism
PIH	Pregnancy induced hypertension
PTT	Partial thromboplastin time
FDPs	Fibrin degradation products
PE	preeclampsia
Mg/mmol	Milligram per millimole
SAP	Systolic arterial pressure
DAP	diastolic arterial pressure
CHD	Congenital heart disease
VSD	ventricular septal defect
ASD	atrial septal defect
PDA	patent ductus arteriosus
SVR	Systemic vascular resistance
CH	Congenital heart
TOF	Tetralogy of Fallot
PVR	pulmonary vascular resistance
PA	Pulmonary artery
APRV	Airway pressure release ventilation
HFV	High frequency ventilation
V/Q	Ventilation perfusion ratio
Hz	hertz
PLV	Partial liquid ventilation
NO	Nitric oxide
NO₂	Nitrogen dioxide
PGI₂	Prostaglandin I ₂ or prostacyclin
PAF	Platelet activating factor
pbm	Heart beat per minute



PCWP	Pulmonary capillary wedge pressure
CV	cardiovascular
PAC	Pulmonary artery catheter
BP	Blood pressure
IV	Intra-venous
SBE	Subacute bacterial endocarditis
DDAVP	desmopressin
FFP	Fresh frozen plasma
mL/kg	Milliliter per kilogram
ECG	Electro-cardiogram
LMWH	Low molecular weight heparin
PCA	patient-controlled analgesia
T5	Thoracic vertebra no. 5
ml/kg/h	Milliliter per kilogram per hour
mg/kg	Milligram per kilogram
Fio₂	Inspired oxygen concentration
Mgso₄	Magnesium sulphate
mL/m²/h	Milliliter per square meter per hour
PTU	propylthiouracil
DVT	deep venous thrombosis
ACT	Activated clotting time
GA	General anesthesia
MAP	Mean arterial pressure
CSE	Combined spinal & epidural anesthesia
ITU	Intensive therapy unit
PH⁺	Pulmonary hypertension



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Introduction

Pregnant women rarely develop complications that require ICU admission. Retrospective analyses of hospital admission and complication rates suggest that 0.11 to 0.89 percent of deliveries are complicated by maternal ICU admission. However, maternal mortality rates are substantial when pregnant women require critical care, ranging from 5 to 20 percent in different series (*Vasquez, et al, 2007*).

In general, pregnancy should be considered a unique, physiologically normal episode in a woman's life. However, preexisting disease or unexpected illness of the mother or fetus can complicate the pregnancy. There are many causes of collapse that can happen during pregnancy, just before delivery or even during it and also during the puerperium period such as adult respiratory distress syndrome (ARDS), peripartum cardiomyopathy, HELLP syndrome, diabetic ketoacidosis, amniotic fluid embolism, hypertensive disorders of pregnancy, peripartum and postpartum hemorrhage (*Collop & Sahn, 1993*).

Although there are physiological and anatomical changes that render the parturients with compensatory mechanisms and these changes can cover the extreme demands of pregnancy. Yet, these changes can't protect them completely from many respiratory complications that might occur during their gestation and may end with acute respiratory failure such as adult respiratory distress syndrome (ARDS) and pulmonary edema due to pre-eclampsia, eclampsia, tocolytic-induced or a cardiac disease which may be pre-existing or of acute onset (*Sciscione, et al, 2003*).



The frequency of women with heart disease becoming pregnant may be increasing due to improvements in diagnosis and treatment as well as the trend toward delayed childbearing. Cardiovascular decompensation may result when previously asymptomatic pathology becomes challenged by these changes or when a cardiovascular disorder presents for the first (or only) time during pregnancy. Cardiovascular disorders in pregnancy often present a significant challenge to the clinician because many of the signs and symptoms of cardiovascular disease can be obscured or misinterpreted during pregnancy. The most common cardiovascular disorders likely to become manifest during pregnancy are hypertension, myocarditis, cardiomyopathies, thromboembolic disease, valvular and congenital heart disease (*Ramsey, et al, 2001*).

Most of the life threatening disorders affecting the liver during pregnancy are variants of the late gestational hypertension-related syndromes such as the syndrome of hemolysis, elevated liver function tests, and low platelets (HELLP syndrome), acute fatty liver of pregnancy (AFLP), a third trimester disease that occurs in approximately 1 in 13,000 pregnancies (*Rinehart, et al, 1999*).

Intrapartum hemorrhage as maternal genital tract trauma, is the bleeding that takes place as a normal consequence of labor. Antepartum and postpartum hemorrhage can be further subdivided. Twenty-two weeks gestation divides the early and late antepartum period, whereas the postpartum can be further subdivided into immediate (first 24 h) and late (beyond 24 h) periods, moreover it accounts for approximately 17 percent of maternal deaths and is a major cause of maternal ICU admission (*Roberts, 1995*).