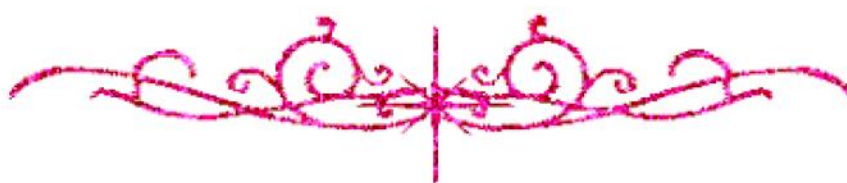


hossam maghraby



شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم



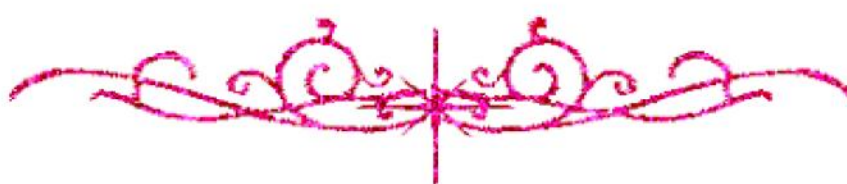
hossam maghraby



شبكة المعلومات الجامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



hossam maghraby



شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

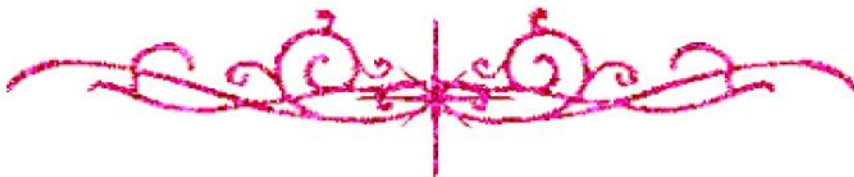
قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



hossam maghraby



شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة



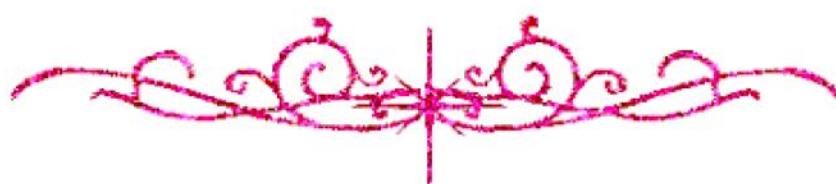
hossam maghraby



شبكة المعلومات الجامعية



**بالرسالة صفحات
لم ترد بالأصل**



COMPARISON BETWEEN THE EFFECT OF ROCURONIUM AND PIPECURONIUM ON THE HEMODYNAMICS OF PATIENTS DURING MITRAL VALVE REPLACEMENT SURGERY

B16622

*A thesis submitted
For partial fulfillment of the master degree in
Anesthesiology*

By

Mohamed Abd-Elrahman Khalifa

M.B.B.Ch.

Supervisors

Dr. Ahmed Hamed El-Touny

*Assistant Prof. of Anesthesiology
Faculty of Medicine
Suez Canal University*

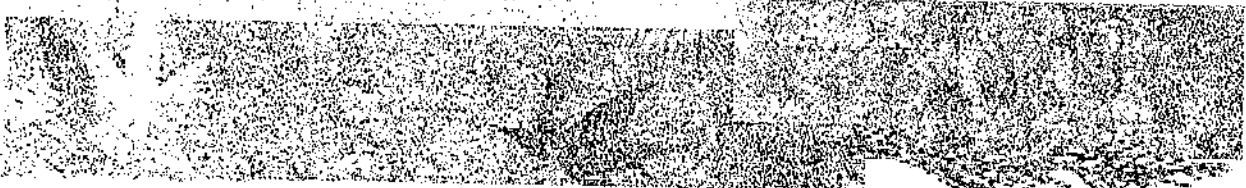
**Dr. Nihal Adel
Nasr**

*Lecturer of Anesthesiology
Faculty of Medicine
Suez Canal University*

**Dr. Kawther Taha
Khalil**

*Consultant & Head of
Anesthesiology
National Heart Institute*

*Faculty of Medicine
Suez Canal University
2001*



Dedication to

My wife

and my family

ACKNOWLEDGEMENT

Before all, I should express my deepest thanks to Allah. Without his great blessing I would never accomplish this work.

It is a great pleasure and honor to work under supervision of **Dr. Ahmed Hamed El-Touny**, Assistant Prof. of Anesthesiology, Suez Canal University. His modesty, honesty, generosity and patience have affected me so much.

I am greatly honored to express my thanks to **Dr. Nihal Adel Nasr**, lecturer of Anesthesiology Suez Canal University, for her kind guidance, continuous supervision and persistent help me to finish this work.

I would like to express my deep appreciation to **Dr. Kawther Taha Khalil**, Counsultant&head of Anesthesiology, National Heart Institute, who facilitated everything to me to do this thesis.

Lastly, I could never forget the great effort and support that I had received from consultants of the National Heart Institute namely **Dr, Faeka Madbouly, Dr, Mostafa El-Hamamsy, Dr, Randa Abd El-Sameea and Dr.Amr Allam.**

LIST OF ABBREVIATIONS

ACh.....	Acetylcholine	K ⁺	Potassium ions
ATP.....	Adenosine triphosphate	LV.....	Left ventricle
BP.....	Blood pressure	LVEDP...	Left ventricular end diastolic pressure
BSA.....	Body surface area	LVEDV...	Left ventricular end diastolic volume
NMBA.....	Non-depolarizing blocking agent	MR.....	Mitral regurgitation.
NDMR.....	Non-depolarizing muscle relaxant	MS.....	Mitral stenosis
CI.....	Cardiac index	NYHA....	New York Heart Association
CVP.....	Central venous pressure	Na ⁺	Sodium ions
COP.....	Cardiac output	PAC.....	Pulmonary artery catheter
Ca ⁺⁺	Calcium ions	PAP.....	Pulmonary artery pressure
EDP.....	End diastolic pressure	PCWP.....	Pulmonary capillary wedge pressure
EDV.....	End diastolic volume	PI.....	Post induction
EF.....	Ejection fraction	PVR.....	Pulmonary vascular resistance
ESV.....	End systolic volume	RV.....	Right ventricle
FS.....	Fractional shortening	SV.....	Stroke volume
HR.....	Heart rate	SVI.....	Stroke volume index
ICP.....	Intracranial pressure	SVR.....	Systemic vascular resistance
IOP.....	Intra-ocular pressure	TOF.....	Train of four
IV.....	Intravenous	CABG.....	Coronary artery bypass grafting
IJV.....	Internal jugular vein	MVP.....	Mitral valve prolaps
		SVC.....	Superior vena cava

LIST OF FIGURES

1. Neuromuscular junction	7
2. The nicotinic ACh. receptors	10
3. The molecular structure of pipecuronium	24
4. Plasma concentration of pipecuronium in elderly and younger patients	27
5. Dose-response relations of pipecuronium in pediatric patients	28
6. Dose-response relations of pipecuronium under balanced and enflurane anesthesia	30
7. The molecular structure of rocuronium, vecuronium and pancuronium.....	35
8. Effect of volatile agents on clinical duration of rocuronium	40
9. Intubating conditions after rocuronium and Suxamethonium	41
10. Muscular relaxation following 0.6 mg/kg of rocuronium	43
11. Muscular relaxation following 0.45 mg/kg of rocuronium	44
12. Hemodynamic parameters following rocuronium and vecuronium	47

13.Comparison between the effect of rocuronium and pipecuronium on heart rate.....	70
14.Comparison between the effect of rocuronium and pipecuronium on stroke volume	73
15.Comparison between the effect of rocuronium and pipecuronium on cardiac output	76
16.Comparison between the effect of rocuronium and pipecuronium on cardiac index	79
17.Comparison between the effect of rocuronium and pipecuronium on mean arterial blood pressure.....	82
18.Comparison between the effect of rocuronium and pipecuronium on central venous pressure.....	85
19.Comparison between the effect of rocuronium and pipecuronium on systemic vascular resistance.....	88
20.Comparison between the effect of rocuronium and pipecuronium on mean pulmonary artery pressure.....	91
21.Comparison between the effect of rocuronium and pipecuronium on pulmonary capillary wedge pressure.....	94
22.Comparison between the effect of rocuronium and pipecuronium on pulmonary vascular resistance.....	97

LIST OF TABLES

1. Autonomic margins of safety of non-depolarizing relaxants	17
2. Autonomic effects of neuromuscular blocking drugs	18
3. Requirement for the ideal neuromuscular agent	23
4. Dosage and clinical duration of pipecuronium.....	27
5. Effect of volatile anesthetics on pipecuronium potency.....	29
6. Requirement for the ideal neuromuscular agent.....	34
7. Side effects of Suxamethonium.....	41
8. Scoring of Intubating conditions.....	42
9. Preoperative demographic and important echocardiography data.....	67
10. Comparison between the effect of rocuronium and pipecuronium on heart rate.....	69
11. Comparison between the effect of rocuronium and pipecuronium on stroke volume	72

12.	Comparison between the effect of rocuronium and pipecuronium on cardiac output	75
13.	Comparison between the effect of rocuronium and pipecuronium on cardiac index	78
14.	Comparison between the effect of rocuronium and pipecuronium on mean arterial blood pressure.....	81
15.	Comparison between the effect of rocuronium and pipecuronium on central venous pressure.....	84
16.	Comparison between the effect of rocuronium and pipecuronium on systemic vascular resistance.....	87
17.	Comparison between the effect of rocuronium and pipecuronium on mean pulmonary artery pressure.....	90
18.	Comparison between the effect of rocuronium and pipecuronium on pulmonary capillary wedge pressure.....	93
19.	Comparison between the effect of rocuronium and pipecuronium on pulmonary vascular resistance.....	96

CONTENTS

	Pages
• List of abbreviations	I
• List of figures	II
• List of tables	IV
• Introduction	1
• Aim of the work.....	3
• Review of literature	
- <i>Historical overview of muscle relaxant</i>	4
- <i>Physiology of neuromuscular transmission</i>	6
- <i>Hemodynamic effects of muscle relaxants</i>	14
- <i>Pipecuronium: An overview</i>	24
- <i>Rocuronium: An overview</i>	34
- <i>Pathophysiology of mitral valve disease</i>	51
• Materials and Methods	58
• Results	66
• Discussion	98
• Summery	109
• Recommendations	112
• References	113
• Arabic summary	