

"Interventional Angiology in Cerebrovascular Disorders "



Thesis

Submitted for partial fulfillment
of Master Degree in Neuropsychiatry

By *id el*

Mohamed Fekry A. Aziz Eissa
M.B., B.Ch.,

53978

Supervised by

Prof. Dr. M. Anwar Etribi

*Prof. of Neuropsychiatry
and Head of Neurology Unit,
Faculty of Medicine, Ain Shams University*

الانوار
م. انوار

616.81

M.F

Prof. Dr. M. Ossama Abdulghani

*Prof. of Neuropsychiatry,
Faculty of Medicine, Ain Shams University*

أ. م. ع. م.

Dr. Heba Essawy

*Lecturer in Neuropsychiatry,
Faculty of Medicine, Ain Shams University*

ه. ع. س.

ه. ع. س.

Faculty of Medicine
Ain Shams University
Department of Neuropsychiatry

1997







"وَمَا أُوتِيتُمْ مِنَ الْعِلْمِ إِلَّا قَلِيلًا"



Dedication

TO
my beloved mother
and father,
for their warm affection, patience,
support, and for always being there when
I needed them.

Acknowledgement

I would like to express my deeply felt gratitude to **Prof. Dr. M. Anwar Etribi**, professor of Neuropsychiatry and head of Neurology unit, Ain Shams University, not only for his continuous guidance, corrections, explanations and provision of support, but for a lot more that words are never enough to express.

To thank **Prof. Dr. M. Ossama Abdulghani**, professor of Neuropsychiatry, Ain Shams University, would fall short of how I feel for his hearty and continuous encouragement, his patience and the enormous help he gave me.

Special thanks to you, **Dr. Heba Essawy**, lecturer in Neuropsychiatry, Ain Shams University, for your time, your understanding and your endless suggestions and discussions.

I would also like to express my gratitude to **Prof. Dr. Moustafa Kamel**, professor and chairman of Neuropsychiatry department, Ain Shams University, for his help and encouragement.

Last but not least, my thanks extend to every member of my professors and colleagues in the department of Neuropsychiatry, Ain Shams University.

Table of Contents

	<i>Page</i>
List of Tables and Figures	vi
Introduction	1
Aim of the Work	4
Basic Principles of Recent Interventional Techniques	5
• Introduction	5
• Angiographic room equipment	5
• Anaesthesia	6
• Anticoagulants	6
• Puncture system	7
• Embolic material	10
• Conclusion	16
Thrombolysis	17
• History	17
• Difference between acute myocardial infarction and acute stroke	18
• Modalities of treating thrombosis	18
• Aim of thrombolysis	27
• Time of application of fibrinolytics	28
• Inclusion criteria for local thrombolytic therapy	29
• Exclusion criteria	29
• Evaluation of patients before thrombolysis	30
• Technique of administration of fibrinolytic agent	31
• Post treatment care and evaluation	32
• Hemorrhagic complications	33
• Outcome of thrombolysis	34
• Conclusion	40
Spasmolysis	41
• Introduction	41
• Cause of vasospasm	41
• Treatment of vasospasm	41
• Conclusion	46
Percutaneous Transluminal Angioplasty and Stenting	47
• History	47
• Risk factors of stroke	48

• Aim of the procedure	50
• Value of stenting	50
• Inclusion criteria	50
• Exclusion criteria	50
• Preprocedural evaluation	51
• Procedure of angioplasty and stenting	51
• Postprocedural follow up	54
• Advantages of percutaneous transluminal angioplasty and stenting	54
• Disadvantages	54
• Complications	54
• Outcome	55
• Conclusion	60
Embolization Techniques	61
• History	61
• General principle	61
• <i>Embolization of aneurysm</i>	63
• Selection criteria	63
• Aim of the procedure	63
• Pre-embolization technique	64
• Advantages of endovascular technique	68
• Disadvantages	69
• Complications	69
• Outcome of endovascular technique	70
• Conclusion	74
• <i>Embolization of arteriovenous malformation</i>	74
• Selection criteria	74
• Aim of the procedure	75
• Pre-embolization technique	75
• Embolization technique	75
• Post-embolization technique	78
• Advantages of embolization technique	79
• Disadvantages	79
• Complications	79
• Outcome	80
• Conclusion	82
Stereotactic Radiosurgery	83
• History	83
• Selection criteria	84
• Aim of the therapy	84

• Pre-procedural preparation	85
• Modalities of radiosurgery	85
• Post-procedural follow up	91
• Advantages	91
• Disadvantages	91
• Complications	92
• Future prospective	92
• Outcome of radiosurgery	92
• Conclusion	96
Discussion	97
Recommendations	107
Summary	108
References	111
Arabic summary	

List of Tables

Table	<i>Page</i>
Table (1): Pharmacological and clinical features of fibrinolytics	27
Table (2): : Grading scale of cerebral vasospasm	43

