ASSESSMENT OF DIABETIC RETINOPATHY PROGRESSION IN EARLY POSTOPERATIVE PERIOD AFTER PHACOEMULSIFICATION

THESIS
Submitted for Partial Fulfillment of the M.D Degree in Ophthalmology

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Cairo
2013

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ACKNOWLEDGEMENTS

First of all, I must express the utmost gratitude to ***Allah***, the most kind and most merciful, for all the gifts offered to me.

I would like to express my deepest thanks and sincere gratitude to ***Prof. Dr. Mervat Salah***, professor of ophthalmology, faculty of medicine, Ain shams university, for her kindness, precious advice, continuous encouragement and guidance throughout this work.

I am extremely grateful to ***Prof. Dr. Hazem Nooh***, professor of ophthalmology, faculty of medicine, Ain shams university, for his kind supervision, help, and guidance.

I am also indebted to ***Prof. Dr. Dina Ezzat***, professor of ophthalmology, faculty of medicine, Ain shams university, who helped me a lot in this work. Her comments were always beneficial and meaningful.

Then I must thank my family and colleagues in ophthalmology department, Ain shams university, for their great care, assistance and help.

Abstract:

Diabetes is the commonest risk factor for cataract. The aim of this study was to detect any progression of diabetic retinopathy following phacoemulsification in cataractous diabetic patients and to determine whether opening of posterior capsule during surgery affects the progression of diabetic retinopathy. Seventy cataractous diabetic patients were included in this study and were divided into three groups. Group A Included thirty patients with diabetic retinopathy and exposed to uncomplicated phacoemulsification surgeries. Group B Included thirty patients with diabetic retinopathy and exposed to phacoemulsification surgeries with accidental rupture of posterior capsule during surgery. Group C (control group) included ten patients without diabetic retinopathy and exposed to uncomplicated phacoemulsification surgeries. Fundus examination, FFA and OCT were done to all cases preoperatively, one month and 6 months postoperatively. The results obtained show that, in diabetic patient, posterior capsule tear leads to more progression of diabetic retinopathy. This may be related to interruption of blood retinal barrier.

key words:

diabetic retinopathy, phacoemulsification, central macular thickness, macular oedema, fluorescein angiography.

LIST OF ABBREVIATIONS

BRB: Blood retinal barrier

CMT: Central macular thickness

CSME: clinically significant macular edema

DCCT: Diabetes control and complications trial

DME: Diabetic macular edema

DR: Diabetic retinopathy

ETDRS: Early treatment diabetic retinopathy study

FA: Fluorescein angiography

FAZ: Foveal avascular zone

Hb: Haemoglobin

IDDM: Insulin dependent diabetes mellitus

IL: Interleukin

IOL: Intraocular lens

IRMA: Intraretinal microvascular abnormalities

NIDDM: Non Insulin dependent diabetes mellitus

NPDR: Non proliferative diabetic retinopathy

NVD: Neovascularization at disc

NVE: Neovascularization elsewhere

OCT: Optical coherence tomography

PDR: Proliferative diabetic retinopathy

PG: Prostaglandin

PMMA lens: Polymethylmethacrylate lens

PRP: Panretinal photocoagulation

RPE: Retinal pigment epithelium

TNF: Tumor necrosis factor

VA: Visual acuity

VEGF: Vascular endothelial growth factor

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INTRODUCTION & AIM OF THE WORK

INTRODUCTION

Diabetic retinopathy is a microangiopathy affecting the retinal precapillary arterioles, capillaries and venules. However, larger vessels may also be involved. Retinopathy has features of both microvascular occlusion and leakage **(Kanski, 2007).**

Cataract is one of the commonest causes of loss of useful vision, with an estimated 16 million people worldwide affected. Several risk factors have been identified as increasing age, genetic composition, exposure to ultraviolet light and diabetes **(Asbell, 2005)**.

Significant diabetic ocular pathology should be treated before consideration of cataract surgery. Visual acuity after cataract surgery in diabetics can be impaired by severe fibrinous uveitis, capsular opacification, anterior segment neovascularisation, macular edema and progression of retinopathy **(Devgan, 2010).**

Squirrell et al (2002), stated that uncomplicated phacoemulsification does not cause acceleration of diabetic retinopathy postoperatively and any progression that is

observed probably represents the natural course of the disease. Although macular edema is common after cataract surgery, it may follow a benign course and in many patients the development of clinically significant macular edema postoperatively probably represents natural progression rather than being a direct effect of surgery.

Chung et al (2002), stated that diabetic retinopathy can progress after cataract surgery. The presence of preoperative macular edema and poor renal function increased the progression of retinopathy postoperatively.

Diabetic patients with visually significant cataract pose unique challenges during surgery, and they may be prone to a more difficult postoperative recovery. However, with careful pre-treatment of the diabetic retinopathy, atraumatic surgical techniques and appropriate medications postoperatively, these patients can do very well with excellent visual recovery just like other cataract patients **(Devgan, 2010).**

AIM OF THE WORK

The aim of this study is to detect any progression of diabetic retinopathy in the early postoperative period after phacoemulsification in cataractous diabetic patients and to determine whether complicated cases of phacoemulsification with opening of posterior capsule during surgery affects the progression of diabetic retinopathy.