

# **Drug-Induced Uveitis**

**Essay**

*Submitted for the Partial Fulfillment of Master  
Degree in Ophthalmology*

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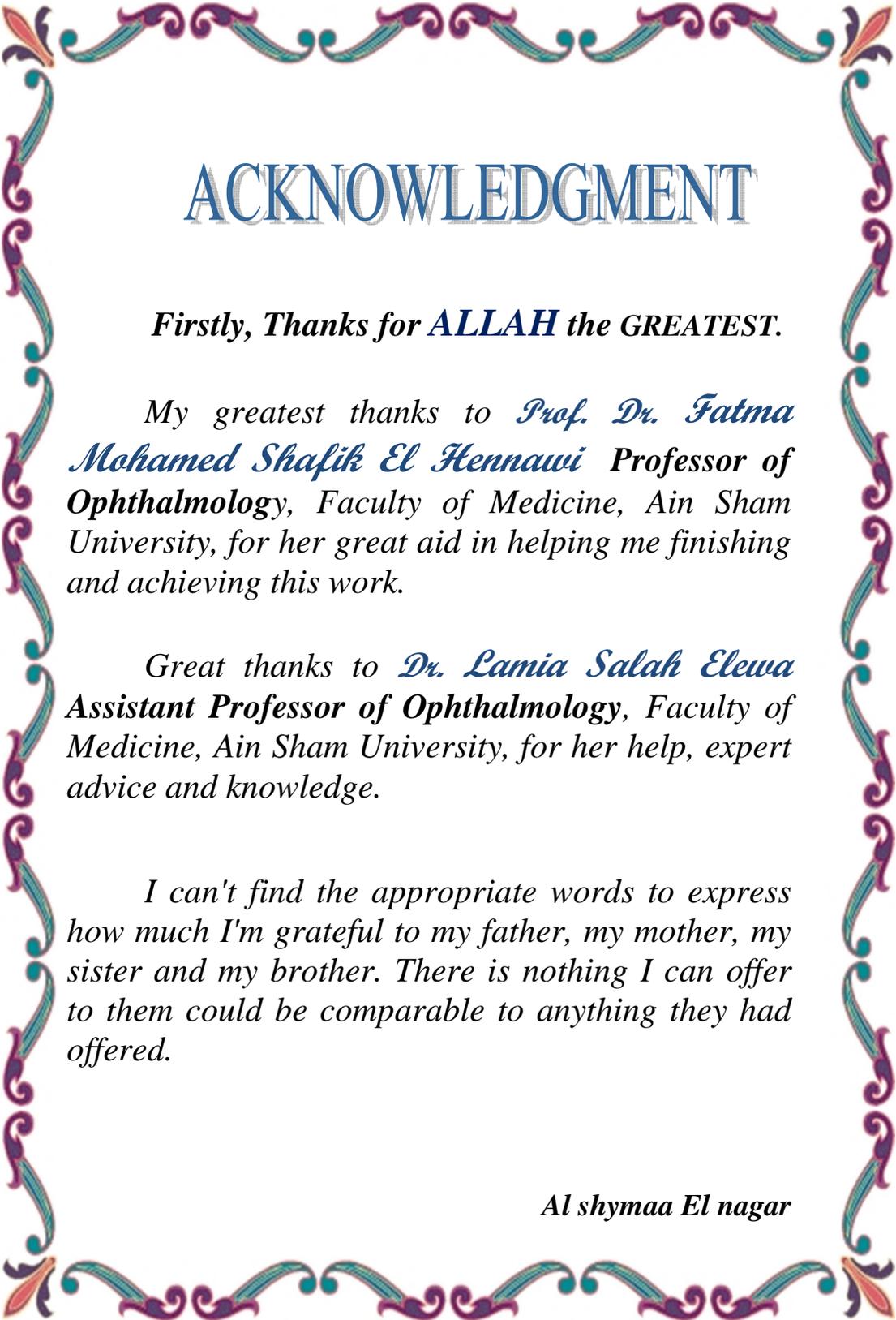
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## List of Abbreviations

<b>AIDS</b>	Acquired immune deficiency syndrome
<b>AMD</b>	Age-related macular degeneration
<b>APMPPE</b>	Acute Posterior Multifocal Placoid Pigment Epitheliopathy
<b>ARN</b>	Acute retinal necrosis
<b>BCG</b>	Bacille Calmette-Guerin
<b>CMV</b>	Cytomegalovirus
<b>DEC</b>	Diethylcarbamazine
<b>FDA</b>	Food and Drug Administration
<b>FTA-ABS</b>	Fluorescent treponemal antibody absorption
<b>HBV</b>	Hepatitis B virus
<b>HIV</b>	Human immunodeficiency virus
<b>IgE</b>	Immunoglobline E
<b>IL</b>	Interleukin
<b>IOP</b>	Intra Ocular Pressure
<b>IUSG</b>	International Uveitis Study Group
<b>IVTA</b>	Intravitreal Triamcinolone acetamide
<b>KPs</b>	Keratic Precipitates
<b>MMR</b>	Measles, Mumps, and Rubella
<b>PPD</b>	Purified protein derivative
<b>RPE</b>	Retinal pigment epithelium
<b>RVO</b>	Retinal vein occlusion

<b>SUN</b>	Standardization of Uveitis Nomenclature
<b>TA</b>	Triamcinolone acetonide
<b>TNF</b>	Tumour Necrosis Factor
<b>VEGF</b>	Vascular endothelial growth factor
<b>VKH</b>	Vogt Koyanagi Harrada
<b>WBC</b>	White blood cells

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# **Introduction**

Uveitis is a condition that involves inflammation of the uveal tract which is anatomically classified into anterior uveitis (iritis, iridocyclitis, and anterior cyclitis), intermediate uveitis (para planitis, posterior cyclitis, and hyalitis), and posterior uveitis (focal, multifocal, or diffuse choroiditis, chorioretinitis, retinitis, and neuroretinitis). An additional term, panuveitis (anterior chamber, vitreous, retina, and choroid) is also described ( *BenEzra et al., 2000*).

Although most cases of uveitis are due to autoimmune disorders or infections, medications are recognized as an increasingly important cause of uveitis. A number of medications encompassing various forms of administration, including topical formulations, periocular, intraocular injections, and systemic medications have been associated with uveitis (*Cunningham et al., 2012*).

Theoretically, drugs may cause uveitis by direct or indirect mechanisms. Direct toxicity results from drugs that are applied topically or intracamerally. Indirect mechanisms by primary immunological, secondary immunological and melanin related mechanisms (*Salazar-Bookarman et al., 1994*).

Systemic medications associated with uveitis include cidofovir, Oral fluoroquinolones (*Bringas and Iglesias, 2004*), Tumor necrosis factor inhibitors, Bisphosphonates, cobalt, diethylcarbamazepine, pamidronic acid (disodium pamidronate), interleukin-3, interleukin-6, oral contraceptives, quinidine, rifabutin, streptokinase and sulfonamides (*Smith et al., 2012*). Vaccines as Bacille Calmette-Guérin, Varicella, Hepatitis B, Influenza, Measles, mumps and rubella may cause uveitis (*Fraunfelder et al., 2010*).

Topical ocular medications such as  $\beta$ -blockers, Glucocorticosteroids, Brimonidine and Prostaglandin analogues have been associated with uveitis ( *Hondeghem et al., 2009*).

Intravitreal injection of cidofovir and triamcinolone may cause uveitis ( *Chavez et al., 1997*).

The recent availability of treatments for neovascular diseases of the retina and choroid with anti-vascular endothelial growth factor (anti-VEGF) agents has increased the prevalence and recognition of drug induced uveitis ( *Kay et al., 2011*).

Treatment begins with recognition of a drug related event and usually subsequent avoidance of the drug. Therapy depends on the severity and likelihood of the reaction ( *James and Frederick, 1997*).

# **Aim of the work**

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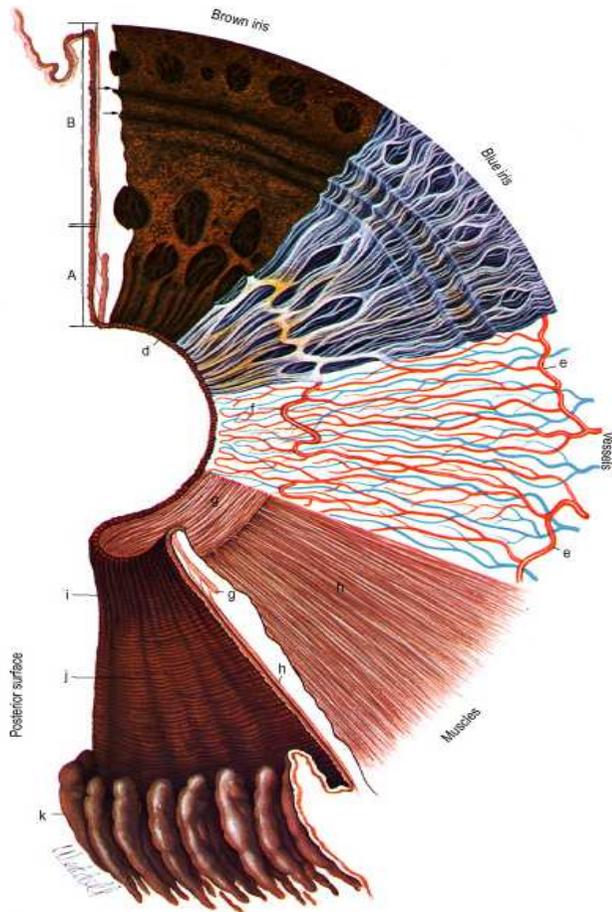
The aim of the work is to spot light on drugs induced uveitis, what are these drugs, pathogenesis, how to manage induced uveitis and prognosis?

*Chapter I:*  
**Important anatomical points  
of uveal tract**

## Chapter I Important anatomical points of uveal tract

The uveal tract is located between the corneosclera and the neuroepithelium. It consists of the iris anteriorly, the ciliary body in the middle, and the choroid posteriorly. Embriologically, it is derived from the neuroectoderm, neural crest cells and vascular channels. The most important anatomical points related to uveitis are vascular supply and innervation of uveal tract (*Snell and Lemp, 2001*).

### The iris:



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**Fig.1** Composite view of the surfaces and internal strata of the iris (*Hogan et al.,1971*).