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Review

Risk Factors for High Intraocular Pressure, Glaucoma and Retinal Detachment

Abdulkawi Yahya Radman Al-Shamiri [1*], Balqis Yahya Ali Abdullah Al-Mahweeti [2]

[1]Department of Computer Application Technology, Graduate School of Computer and Information, Hefei University of Technology (HFUT), China

[2]Faculty of Medical Science, Department of Medical Laboratories, Hodeidah University, Yemen

[*]***Corresponding author***

Email : abdulkawiy@yahoo.com

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Abstract: *The eye is a complex organ for sight (Vision), has vital importance for everyday life. High intraocular pressure, glaucoma, retinal detachment and optic neuropathy lead to loss vision. There are many people lost their vision in one of eyes or both as result of high intraocular pressure, glaucoma, retinal detachment or damage of optic nerve, me one of whom. This paper aims to collect the most risk factors for high intraocular pressure, glaucoma, and retinal detachment which have been mentioned in several different resources in one paper.*

***Keywords**: Risk Factors, Increased Intraocular Pressure, Glaucoma, Retinal Detachment, Damage the Optic Nerve, Injury Vitreous Body.*

Introduction

The eye is a complex organ for sight (Vision), has vital importance for everyday life. [1] Vision is paramount to humans to lead an active personal and professional life; where vision loss can lead to depression and cause a decline in social interaction. The prevalence of eyes diseases is rising. Where the number of blind increases every year, and that is expected to double by the year 2020, and more in 2040 [2, 3, 4, 5]; where China has about 18% of the world's blind, and each year an estimated 450 thousand become blind. [4]

The Glaucoma, Increased Intraocular Pressure, Diabetic Retinopathy, Optic Neuropathy (Damage the Optic Nerve), Injury the Vitreous Body, and Retinal detachment are the leading causes of

vision loss (blindness) worldwide. [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]

Early detection of Glaucoma, Increased Intraocular Pressure, Diabetic Retinopathy, Optic Neuropathy (Damage the Optic Nerve), and Retinal detachment is very important to avoid blindness. [1, 4, 5, 9, 12, 13, 21, 22, 27, 29, 31]

Mutual relationships between (Increased intraocular pressure, Glaucoma, Damage the optic nerve, and Retinal detachment):-

There are mutual relationships between (Increased intraocular pressure, Glaucoma, Damage the optic nerve, and Retinal detachment). Where these relationships as following:-

Glaucoma leads to Increased intraocular pressure. [4, 8, 13, 16, 29, 31]

Increased intraocular pressure leads to Glaucoma. [2, 5, 6, 7, 8, 10, 11, 12, 16, 26, 27, 28, 29, 31, 32]

Glaucoma leads to Optic neuropathy (Damage the optic nerve). [2, 3, 4, 5, 6, 8, 10, 11, 12, 14, 15, 16, 26, 27, 29, 31, 32, 33]

Increased intraocular pressure leads to Optic neuropathy (Damage the optic nerve). [2, 3, 5, 6, 7, 8, 10, 13, 14, 15, 16, 29, 31, 34]

Increased intraocular pressure leads to Retinal Detachment. [8, 16, 28]

Glaucoma leads to Retinal Detachment. [6, 8, 10, 16, 27]

Retinal Detachment leads to Glaucoma. [6, 23, 35]

Retinal Detachment leads to Increased intraocular pressure. [23, 35]

The most common conditions, which lead to eye injuries:-

1) Stress (Effort). [8]

2) Small and sharp objects which are entering the eye (e.g., iron particles for lathes, rice husks, insect wings with agricultural workers, and dust, etc.). [8]

3) Sharp trauma (e.g., direct blow to the eye, and car accidents). [8]

4) Chemical injuries. [8]

5) Electrical injuries. [8]

6) Thermal injuries (Fire, or hot fluids). [8]

7) Ultraviolet radiations. [8]

8) Infrared radiations. [8]

9) Ionizing radiational injuries. [8]

Global program for protection of blindness:-

In 1978, World Health Organization (WHO) released a global program for protection of blindness. Protection strategies proposed by WHO include:-

- Evaluation of common blindness diseases at local, regional and national levels.
- Establishment of national level program for prevention of blindness appropriate for the national and local needs.
- Training of eye care providers.
- Operational research to improve and apply appropriate technology.

In Geneva on Feb. 18,1999, World Health Organization (WHO) released a global initiative called ("Vision 2020: The Right to Sight"):-

The aim of this initiative is to eradicate preventable blindness by the year 2020 and to reduce the global burden of blindness which currently affects an estimated 45 million people worldwide. [4, 8]

Because there are many people lost their vision in one of eyes or both as result of high intraocular pressure, glaucoma, or retinal detachment, me one of whom; so this paper collects the most risk factors for high intraocular pressure, glaucoma, or retinal detachment which we have collected them from several different papers and books and blogs in it.

This paper aims to help researchers who are looking for risk factors for high intraocular pressure, glaucoma, or retinal detachment to help humanity avoid or reduce high rate of blindness due to these conditions.

The Intraocular Pressure (IOP)

The eye has a system of production and discharge of fluid inside it, this fluid called "the Aqueous Humour". Where, intraocular pressure, it is pressuring this fluid inside the eye. [34]

The aqueous humour conserves eye pressure appropriately, where the normal intraocular pressure (IOP) is conserved by a dynamic equilibrium between the production and outflow of the aqueous humour. The imbalance in the system of production and discharge of the aqueous humour leads to increased intraocular pressure (IOP). [8, 34] Increased intraocular pressure leads to severe eye pain. [16]

If intraocular pressure is between:-

- 10-20 mm Hg, it is normal [6, 8, 31];
- 20-25 mm Hg, it is suspicious case [2, 6];
- More than 25 mm Hg, it is glaucoma [6].

The reasons that lead to increased intraocular pressure (IOP) is:-

The imbalance in the system of production and discharge of the aqueous humour is the reason that lead to increased intraocular pressure (IOP). [2, 5, 6, 8, 10, 11, 12, 14, 29, 34]

Risk factors for increased intraocular pressure (IOP) are:-

Anyone may be infected with increased intraocular pressure (IOP). [36] Where it may occur in any-age, but it is more common in 40 years or over [8, 36, 37, 38]; occurs with any-gender (Males [37], or females [8]); and occurs with any-ethnicity, but it is more common with African-Americans and Hispanics. [36]

Can classify risk factors into:-

1) Genetic factor:-

It includes (Family history of increased intraocular pressure (IOP) [8, 16, 36, 38], or Family history of Glaucoma [36]).

2) Osmotic pressure of the blood:-

It includes (Hypertension (High blood pressure) [5, 8, 11, 16, 28, 36, 38], or Hypotension (Reduction blood pressure) [8, 16]).

3) Some medicines:-

Such as (Steroids, or corticosteroids) [8, 11, 26, 36, 38].

4) Myopia [36, 38].

5) Eye diseases:-

Such as (Glaucoma [8, 13, 16, 29, 31], Retinal Detachment [23, 35], Uveitis [37], Ocular inflammation [11], Thin corneas [11], (Hit or injury in the eye [11, 36, 38]), (Pseudoexfoliation syndrome, Pigment dispersion syndrome and Corneal arcus [36]), or The fluocinolone acetonide implant (FAI) [37]).

6) Eye surgery [41].

7) Diabetes:-

Such as (Insulin resistance, Fasting glucose, or Hyperglycemia) [2, 5, 36, 38].

8) Trauma:-

It includes (Blow or bruise in the eye, or any-trauma) [11].

9) Stress:-

Such as (Reading for a long time, Hard work, The emotional state, Stress of exam, etc.) [8, 18].

10) Other factors:-

Such as (Anaesthetics [8], Dyslipidemia [5], Migraine [38], Metabolic syndrome [5], Cigarette smoking [8, 38], or (Caffeine and Drinking caffeine-containing beverages [3, 8]).

Glaucoma

Everyone should be concerned about glaucoma and its effects. It is important for each of us, from baby to elder, have to check eyes regularly, because early disclosure and treatment of glaucoma are the only way to prevent vision impairment and blindness [13].

Glaucoma Patients may suffer from headaches and eye pain. [3, 6, 8, 12, 29]

According to a recent European study mentioned that anyone can decrease the glaucoma risk through exercise, regular exercise and an active lifestyle, no smoking, preserving a healthy weight, and eating a varied and healthy diet. where all these helps to reduce the chance that some people will develop glaucoma because it helps improve blood flow in your body and your eyes. [15]

Types of glaucoma:-

1) **Congenital glaucoma** [8, 10, 11, 13, 26, 29, 31]**:-**

It is a relatively uncommon. It is also called developmental glaucoma. In this type, the discharge canal is not developed duly before birth, that leads to high intraocular pressure. Where that may lead to an enlarged eye and the loss of vision due optic-nerve damage. [8]

2) **Irido Corneal Endothelial Syndrome (ICE)** [13]**:-**

It is a relatively uncommon. It usually appears in only one eye, rather than both. Cells on the back surface of the cornea spread on discharge tissue and across the surface of the iris, causing high intraocular pressure and damaging the optic nerve. Where these corneal cells also form adhesions that bind the iris to the cornea, further blocking the discharge canal. [13]

3) **Neovascular Glaucoma** [13]**:-**

It is a type of secondary open-angle glaucoma. The abnormal genesis of new blood vessels on the iris and discharge canal can leads to neovascular glaucoma. Where the new blood vessels block the outflow of aqueous humor through discharge canal, causing high intraocular pressure. This type of glaucoma is very difficult to treat. [13]

4) **Normal tension glaucoma (NTG)** [10, 11, 13, 26, 29, 31]**:-**

It is also called normal-pressure or low-tension glaucoma. In this type the optic nerve is damaged even though the eye pressure is not very high. [13]

5) **Pigmentary Glaucoma** [10, 13, 29]**:-**

It is a type of secondary open-angle glaucoma. When the pigment granules that are in the back of the iris (the colored part of the eye) break into the clear fluid produced inside the eye, pigmentary

glaucoma occurs. Where these pigment granules flow toward the discharge canal then slowly block it, causing high intraocular pressure [13].

6) Primary angle closure glaucoma (PACG) [2, 8, 10, 11, 13, 26, 29, 31]**:-**

It is a less common type of glaucoma. It is caused by blocked discharge canal, causing sudden high intraocular pressure. It has a closed or narrow angle between the iris and cornea, develops very quickly, demands immediate medical attention. [13]

7) Primary open angle glaucoma (POAG) [2, 8, 10, 11, 13, 26, 29, 31]**:-**

It is the most common type of glaucoma, accounting for at least 90% of all glaucoma cases. It is caused by the slow blockage of the discharge canal, causing high intraocular pressure. It has a wide and open angle between the iris and cornea, develops slowly and is a lifelong condition. [13]

8) Primary mixed mechanism glaucoma [8]**:-**

It is a combination of two types of glaucoma (Primary open angle glaucoma (POAG) and Primary angle closure glaucoma (PACG)). [8]

9) Pseudoexfoliative Glaucoma [13]**:-**

It is a type of secondary open-angle glaucoma. When a flaky, dandruff-like material peels off the outer layer of the lens, pseudoexfoliative glaucoma occurs. Where the material collects in the angle between the cornea and iris and can block the discharge canal, causing high intraocular pressure. [13]

10) Secondary glaucoma [8, 10, 11, 13, 26, 29, 31]**:-**

It is any condition in which another disease leads to high intraocular pressure, resulting in damage optic-nerve then vision loss. It may be severe or mild. [13]

11) Traumatic Glaucoma [13]**:-**

It is a type of secondary open-angle glaucoma. It can occur directly after Injury eye or years later. It can be caused by blunt injuries that trauma the eye (blunt trauma) or by injuries that penetrate the eye. [13]

12) Uveitic Glaucoma [29]**:-**

It emerges due of tumefaction of the uvea, the middle layer of the eye that supplies blood to the retina. [29]

The reasons that lead to glaucoma is:-

The Increased intraocular pressure (IOP) is the most common reasons for glaucoma [2, 5, 8, 10, 11, 12, 14, 27, 28], and blockage of the outflow of aqueous humor [2, 5, 12, 14, 29, 33, 34].

Risk factors for glaucoma are:-

Anyone can be infected with glaucoma [13]. Where it may occur in any-age, but it is more common in 40 years or over [2, 3, 6, 7, 8, 10, 11, 12, 13, 14, 16, 26, 27, 29, 31, 34, 38]; occurs with any-gender [27], but there are studies have mentioned that it is more common with Males, and other studies have mentioned that it is more common with females [2, 6, 16]; and occurs with any-ethnicity, but many studies have mentioned that it is more common with different ethnicity such as (Black and White people, African, African Caribbean, African-American, Caucasian, Asians, East Asians, Southeast Asian, Asian\American Indian, Eskimos, Hispanic, Japanese, Inuit, Chinese, Indian, Irish, Russian, Scandinavian, or Latino) [2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 16, 26, 27, 29, 31, 34].

Can classify risk factors into:-

1) **Genetic factor:-**

It includes (Family history of glaucoma [2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 26, 27, 28, 29, 31, 34, 38], or Family history of increased intraocular pressure (IOP) [10]).

2) **Osmotic pressure of the blood:-**

It includes (Hypertension (High blood pressure) [3, 5, 6, 8, 11, 13, 14, 16, 26, 27, 28, 34, 38], or Hypotension (Reduction blood pressure) [5, 6, 8, 13, 16, 27, 28]).

3) **Some medicines:-**

Such as medications of (Cardiovascular, Anti-hyper-tension, Systemic hypertension, Raynaud's disease, Corticosteroid, Calciumchannel, Alphablocker, Steroid, Antihistamines, Asthma, Tricyclic antidepressants, Adrenergics, Anticholinergics, Sulfa derivatives, Cholinergics, Iatrogenic pharmacologic mydriasis and systemic psychotropic medicine, Medication interactions and side effects, or Cortisone compounds) [2, 3, 10, 11, 13, 16, 26, 29, 31, 34, 38].

4) **Refractive error:-**

It includes (Myopia [2, 6, 8, 10, 12, 13, 14, 16, 26, 27, 29, 31, 34, 38], or Hyperopia (Hypermetropia) [2, 6, 10, 12, 16, 26, 29, 31, 34]).

5) **Cardiovascular diseases:-**

Such as (Vascular diseases [27, 28], Vascular insufficiency [8], Vasospasm [6, 8, 16], Cardiovascular disease and Heart disease [5, 11, 14, 26], or Vascular dysregulation [5]).

6) **Eye diseases:-**

Such as (Increased intraocular pressure (IOP) [2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 26, 27, 28, 29, 31, 33, 34], Retinal Detachment [6, 23, 35], Uveitis [3, 6], Ocular inflammation [6, 11, 16, 26, 29], Iris melanomas [16],

Inflammation in the iris of the eye (iritis) [10], Cataract [6, 10, 11, 16, 29], Bleeding inside eye. [6, 16], Ocular tumors [6, 11, 16, 26, 29], Aphakia (It is the absence of the lens of the eye) [6], Thin corneas [2, 10, 11, 26, 27, 29, 34], (Pseudoexfoliation/Exfoliation syndrome, pigment dispersion syndrome and corneal arcus [27, 29]), (Hit or injury in the eye [10, 11, 13, 26, 29, 31, 34, 38]), Congenital malformations of the eye (growth abnormalities in the front chamber angle that obstruct the discharge of the aqueous humour) [3, 6, 8, 29, 31], Buildup of a protein known as beta-amyloid in the eye's retina [33], or The pathogenesis reasons which increase of IOP [8]).

7) **Eye surgery** [11, 26, 31].

8) **Diabetes:-**

Such as (Glycemic control and insulin sensitivity, Fasting glucose, or Hyperglycemia) [2, 5, 8, 10, 11, 12, 13, 14, 16, 26, 27, 29, 31, 34, 38].

9) **Trauma:-**

It includes (Blow or bruise in the eye, or any-trauma) [3, 6, 8, 11, 13, 16].

10) **Stress:-**

Such as (Reading for a long time, Hard work, the emotional state, (dismay or fear), Tension and anxiety, reading in dim illumination or watching television in a dark room, Sports injuries (such as baseball or boxing or other sports injuries), or Other stresses) [6, 8, 16, 18].

11) **Thyroid disease:-**

Such as (Thyrotoxicosis [8], Hypothyroidism (Lack of thyroid secretions) [26], or Other thyroid disease [27]).

12) **Other factors:-**

Such as (Migraine [6, 8, 27, 34, 38], Acute blood loss [8], (Gastrointestinal or uterine bleeding with significant loss of blood [16]), Coagulation (Abnormal coagulability) [8], Excitotoxicity [8], Rheumatic [16], Physical or chemical influences [16], Raynaud disease [27], Metabolic syndrome [5], Higher Hemoglobin [5], Poor blood circulation [34], Caffeine [3], Cigarette smoking [8, 38]).

Retinal Detachment

The retina is a thin layer of light-sensitive nerve cells at the back of the eye. There is detached retina partly and detached retina wholly. The detached retina partly can treat it, then vision will return; while detached retina wholly, vision will loss. The retina is the part of the eye that is sensitive to light. The retina sends messages to your brain about what you see. [22, 30]

A recent study has demonstrated that diet, good metabolic control, assiduous treatment of arterial hypertension, correction of hyperlipidemia and a less sedentary life style can also delay the onset and progression of diabetic retinopathy [4]. The buildup of fluid behind the retina is what detaches the retina [7].

Some problems of retina:-

1) Injury Vitreous Body.

2) Retinal Detachment.

3) Diabetic Retinopathy.

Types of Retinal Detachment:-

1) Rhegmatogenous retinal detachment [9, 20, 21, 22, 30, 39, 40]**:-**

It is a hole or tear in the retina. This allows liquid to slip from the vitreous space into the behind the retina between the sensory retina and the retinal pigment epithelium. The retinal pigment epithelium is the membrane that provides the retina with nourishment and oxygen and is the pigmented cell layer just outside the neurosensory retina. causing the retina to detach. This is the most common type of retinal detachment. [22, 30]

2) Secondary retinal detachment [30]:-

It is also known as exudative retinal detachment or serous retinal detachment. It occurs when inflammation, vascular abnormalities, or injury lead to fluid to build up under the retina. There is no hole, break, or tear. [30]

3) Tractional retinal detachment [9, 20, 21, 22, 30, 39, 40].

It occurs when scar tissue on the retina's surface contracts and causes your retina to pull away from the back of your eye. This is a less common type of detachment. Where, an injury, inflammation, or neovascularization lead to the fibrovascular tissue makes pull the sensory retina from the retinal pigment epithelium. [22, 30]

Risk factors for retinal detachment are:-

Anyone can be infected with retinal detachment. Where it may occur in any-age, but it is more common in 40 years or over [1, 7, 8, 9, 16, 19, 20, 21, 22, 23, 24, 25, 30, 35, 39, 40, 41]; occurs with any-gender, but it is more in males than females [8, 9, 19, 24, 41]; and occurs with any-ethnicity, but it is with Whites more than African Americans [9].

Can classify risk factors into:-

1) Genetic factor:-

It includes (Family history of retinal detachment) [8, 9, 16, 20, 21, 22, 24, 25, 30, 35, 39, 40].

2) Osmotic pressure of the blood:-

It includes (Hypertension (High blood pressure) [5, 16, 21, 24, 28]).

3) Some medicines:-

Such as medications of (Glaucoma medications (like pilocarpine) [25], or Certain kinds of eye drops [35]).

4) Refractive error:-

It includes (Myopia [1, 8, 9, 16, 19, 20, 21, 22, 23, 24, 25, 30, 35, 39, 40], or Axial length [19, 41]).

5) Cardiovascular diseases:-

Such as (Cardiovascular diseases [8], Vascular abnormalities (Neovascularization) [30, 35, 40], or (Collagen vascular or autoimmune diseases) [39]).

6) Retinal diseases:-

Such as (Proliferative diabetic retinopathy [1, 8], Retinopathy of prematurity [1, 8, 39], Weak areas in the retina [25], Lattice degeneration (Thinning of the peripheral retina) [9, 20, 35, 39, 40], (Previous retinal detachment, or Retinal detachment in other eye) [9, 20, 22, 25, 30, 35, 40], Diabetic retinopathy [21, 24, 35], Small tears in the retina [30], A tear or hole in the retina [22, 23, 24, 35, 39, 40], Retinoschisis [9, 20], Damage to blood vessels in the retina [21], Posterior vitreous detachment [22], Retinoblastoma [24], Coats' disease (Exudative retinitis or retinal telangiectasia) [22, 39], Other retinal problems [8], or The reasons that lead to injury the Retina [8]).

7) Eye diseases:-

Such as ((Abnormal movement for fluid in the eye) Increased intraocular pressure (IOP) [8, 16, 24, 28], Glaucoma [6, 10, 16, 24, 41], Aphakia (It is the absence of the lens of the eye) [8], Ocular inflammation [8, 9, 21, 22, 24, 30, 35, 40], Inflammatory disorders [20], Uveitis [9, 20, 30, 35, 39], (Hit or injury in the eye or A penetrating injury by a sharp object to the eye) [9, 20, 21, 23, 24, 25, 30, 35], Diabetic eye disease [39], Neoplasms (Ocular Tumors) [8, 20, 21, 22, 25, 39], Age-related macular degeneration [20], Scleritis [39], Congenital eye diseases [39], or Posterior capsule tear [41]).

8) Eye surgery:-

Such as (Cataract surgery [1, 6, 7, 9, 16, 19, 20, 21, 22, 23, 24, 25, 30, 35, 39, 40], Glaucoma surgery [25], LASIK surgery for highly nearsighted, Surgical technique [19, 41], Surgical complications like vitreous loss, posterior capsule rupture [19, 41], Postoperative factors (neodymium:YAG laser posterior capsulotomy) [19], or Any eye surgery [8, 25, 40]).

9) **Diabetes** [5, 16, 20, 21, 22, 30, 35, 40].

10) **Trauma:-**

It includes (Blow or bruise in the eye (a tennis ball or fist), Strong shocks to the head, Injury to the face, or any-trauma) [1, 8, 9, 19, 22, 24, 30, 35, 39, 40].

11) **Stress:-**

Such as (Some sports (Such as diving, skydiving, bungee jumping, Weightlifting, or roller coaster rides), Heavy manual lifting at work, or Other stresses) [18, 24, 25].

12) **Other factors:-**

Such as (Hemorrhagic [8], Hyperlipidemia [5], Kidney diseases [21], Lyme disease [21], A choroidal tumor [24], Obesity [24], AIDS [24], Eclampsia [24], Homocystinuria [24], Metastatic cancer [24], Stickler syndrome [24], Von Hippel-Lindau disease [24], Zonule dehiscence [41], Anesthetic [41], or Smoking [24]).

Damage the Optic Nerve

The optic nerve transmits nerve signals from the eye to the brain, and carries images of what the eye sees to the brain [17]. Optic nerve atrophy is damage to the optic nerve [17].

The most common problems of the Optic nerve are:-

1) Optic Neuritis.
2) Optic Atrophy (Damage the Optic Nerve).

Risk factors for Optic Atrophy are:-

Can classify risk factors into:-

1) **Older age (Aging)** [17].
2) **Genetic factor:-**

It includes (Family history of damage the optic nerve) [17, 32].

3) **Hypertension (High blood pressure)** [28].
4) **Some medicines:-**

Such as (Contraceptives, or Drugs for heart disease and diabetes) [32].

5) **Myopia** [8].
6) **Diseases of the brain and central nervous system:-**

Such as (Brain tumor, Cranial arteritis (sometimes called temporal arteritis), Multiple sclerosis, or Stroke) [17]).

7) **Eye diseases:-**

Such as (Increased intraocular pressure (IOP) [2, 3, 5, 6, 7, 8, 10, 13, 14, 15, 16, 29, 31, 34], Glaucoma [2, 3, 5, 6, 8, 10, 11, 12, 14, 15, 16, 17, 26, 27, 29, 31, 32], Optic Neuritis. [6, 8, 32], Toxic amblyopia (Chronic retrobulbar neuritis) [6, 8], Chorioretinitis (Inflammation of the choroid, and retina of the eye) [8], Cataract [16], Retinitis [6], or Neoplasms (Ocular Tumors which presses on the optic nerve) [32]).

8) Diabetes [32].

9) Trauma:-

It includes (shock and trauma, Head injury, or any-trauma) [8, 17].

10) Stress [18].

11) Other factors:-

Such as (Tumors inside the skull [8], Tabes dorsalis (Syphilitic myelopathy - Demyelination) [8], Acute anemia [8], Toxins [17], Radiation [17], Autoimmune disorders [32], Parasites [32], Allergies [32], (Deficiencies of certain vitamins, particularly folic acid and vitamin B12) [32], or (Tobacco and alcohol) [17, 32]).

Conclusions

The glaucoma, increased intraocular pressure, optic neuropathy (Damage the Optic Nerve), and retinal detachment are common risks and the leading causes of vision loss (blindness) worldwide. But if which are discovered early can prevent blindness in the affected eye. In order to early detection of any disease, the risk factors which probably lead to it should be recognized, to sensitize and alert whom who have these factors to continuous and regular follow-up and try to treat and not neglect these factors. So, we have done this paper.

There are no particular conditions, are reasons for glaucoma, increased intraocular pressure, optic neuropathy (Damage the Optic Nerve), or retinal detachment, but there are some risk factors which are possible reasons for them.

The risk factors for increased intraocular pressure are the imbalance in the system of production and discharge of the aqueous humour, genetic factor, osmotic pressure of the blood (hypertension or hypotension), some medicines, myopia, glaucoma, retinal detachment, ocular inflammation, thin corneas, injury in the eye, pseudoexfoliation syndrome, Pigment dispersion syndrome and Corneal arcus, the fluocinolone acetonide implant (FAI), eye surgery, diabetes, trauma, stress, anaesthetics, dyslipidemia, migraine, metabolic syndrome, cigarette smoking, caffeine and drinking caffeine-containing beverages.

The risk factors for glaucoma are increased intraocular pressure, genetic factor, osmotic pressure of the blood (hypertension or hypotension), some medicines, myopia, hyperopia, cardiovascular diseases, retinal detachment, cataract, thin corneas, uveitis, ocular inflammation, iris melanomas, inflammation in the iris, bleeding inside eye, ocular tumors, aphakia, Pseudoexfoliation/Exfoliation syndrome, pigment dispersion syndrome and corneal arcus, injury in the eye, congenital malformations of the eye, buildup of a protein known as beta-amyloid in the eye's retina, eye surgery, diabetes, trauma, stress, thyroid disease, acute blood loss, gastrointestinal or uterine bleeding with significant loss of blood, coagulation, excitotoxicity, rheumatic, physical or chemical influences, raynaud disease, metabolic syndrome, higher hemoglobin, poor blood circulation, migraine, caffeine, and cigarette smoking.

The risk factors for retinal detachment are genetic factor, hypertension, myopia, some medicines, cardiovascular diseases, previous retinal detachment or retinal detachment in other eye, a tear or hole in the retina, abnormal movement for fluid in the eye (Glaucoma, or Increased Intraocular Pressure), ocular inflammation, Injury in the eye or a penetrating by a sharp object to the eye, diabetic retinopathy, proliferative diabetic retinopathy, retinopathy of prematurity, weak areas in the retina, lattice degeneration, small tears in the retina, retinoschisis, retinoblastoma, damage to blood vessels in the retina, posterior vitreous detachment, coats' disease, aphakia, ocular inflammation, inflammatory disorders, uveitis, diabetic eye disease, ocular tumors, age-related macular degeneration, scleritis, congenital eye diseases, posterior capsule tear, cataract surgery, glaucoma surgery, LASIK surgery for highly nearsighted, surgical technique, surgical complications like vitreous loss, posterior capsule rupture, postoperative factors, diabetes, trauma, stress, hemorrhagic, kidney diseases, lyme disease, a choroidal tumor, obesity, AIDS, eclampsia, homocystinuria, metastatic cancer, stickler syndrome, von Hippel-Lindau disease, zonule dehiscence, anesthetic, hyperlipidemia, and smoking.

The risk factors for damage the optic nerve are increased intraocular pressure, glaucoma, older age, genetic factor, hypertension, some medicines, myopia, diseases of the brain and central nervous system, optic Neuritis, toxic amblyopia, chorioretinitis, cataract, retinitis, ocular tumors, diabetes, trauma, stress, tabes dorsalis, acute anemia, toxins, radiation, autoimmune disorders, parasites, allergies, deficiencies of certain vitamins, particularly folic acid and vitamin B12, and tobacco and alcohol.

Future Work

These factors were collected in order to do a study of using modern computer technologies as data mining techniques to help eyes doctors for deep discover these risk factors.

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Abdulkawi Yahya Radman Al-Shamiri, Yemeni, Master student at Hefei University of Technology (HFUT) in China. I have skills of teaching and preparing books; where I started teaching in many universities and institutes since 2008 to 2016, and I published my first book in 2012 (1st edition) titled "Introduction for Computer Science" then in 2014 (2nd edition), second book in 2014 (1st edition) titled "Electronic management".

Balqis Yahya Ali Abdullah Al-Mahweeti, Yemeni. I have skills of medical diagnosis in Medical Laboratories and teaching skill; where I started working in medical laboratories immediately after graduating from the bachelor 2007 to 2016, and I started teaching since 2009 to 2011. At the beginning of 2012, I was promoted to post of academic responsible (vice dean for academic affairs) in community college for medical science & the technology, the period between 01/01/2012 – 09/2016.

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