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CARDIAC DISEASES AND ITS COMPLICATION IN THE EYES

Dr. Raju S N **MS (ayu)**

Assistant professor

Department of Shalakyatantra,

Shree Jagadguru Gavisiddeshwara Ayurveda Medical College and Hospital, Koppal. Karnataka-583231

Email ID: gonchigarraju@gmail.com

ABSTRACT

Cardiovascular disease can cause several signs and symptoms, from chest pain, fatigue, and shortness of breath to high blood pressure and abnormal heartbeat. Other than that cardiovascular disease can lead to a variety of signs and symptoms like diminished vision and sudden vision loss and other ocular complications. The common causes which are interrelated with cardiac diseases and eyes are smoking, hypertension, vacuities, dyslipidemia, and hyperlipidemia. These diseases will lead to atherosclerosis and ischemia, occlusion, and damage to the vasculature of the retina and eyes and lead to inflammatory vascular diseases like hypertensive retinopathy, central retinal artery occlusion, and CRAO, CRVO, CRBO due to ischemia or occlusion by emboli or blood clot, plaque. So the common symptoms are diminished vision and sudden loss of vision. The following retinal changes can be an indication of heart disease they are like hard exudates, aneurysms, soft exudates, and pale retinas. This is the reason why a regular comprehensive eye examination is needed for all individuals As preventive and control measures and treatment of hypertension, regular ocular examination and de-addiction of smoking, regular walking, exercise, and following Rutucharya and Dinacharya, Rutushodhana following Ayurvedic Netrakriyakalpa regularly one can avoid these diseases and its complications.

Keywords: Cardiac Diseases, Eye Diseases, Netra Kriya Kalpa, Retina.

1. INTRODUCTION

Up to 10% of individuals over the age of 40 without diabetes mellitus[1] exhibit – usually very mild retinopathic features such as microaneurysms, dot and blot haemorrhages, and cotton wool spots detects that would be reliable with a conclusion of diabetic retinopathy. Assuming[2] that an alternative ocular cause such as RVO or idiopathic macular telangiectasia has been excluded, this 'non-diabetic' retinopathy tends to be associated with increased Cerebro and cardiovascular risk and may be particularly prevalent in patients with known or incipient hypertension[3]. There is evidence[4] suggesting that it may be a marker of pre-clinical diabetes in some patients; higher venular calibre may also denote this. Appropriate[5] management is undefined, though evaluation and optimal management of systemic vascular risk factors may be prudent. The signs[6] commonly disappear spontaneously, and this is more likely in those with lower levels of cardiovascular risk. The eyes and the heart are two different organs and have more in common than one might expect. They share[7] many characteristics that may help in the detection, prevention, and treatment of multiple health conditions.

2. **RISK FACTORS**

Age is the most important factor; over 50% of cases occur in patients older than 65, Hypertension is present in two-thirds or more of RVO patients over the age of 50 years and in 25% of younger patients. It is most prevalent in patients with BRVO, Hyper lipidaemia is present in one-third or more of patients, irrespective of age, and Diabetes mellitus is present in up to 15% of patients[8] over 50 years of age overall. It is more prevalent in Asian and black patients, but uncommon in younger patients, Smoking Current smoking may be associated with an increased incidence of RVO, though studies have shown inconsistent results, an inflammatory disease associated with occlusive phlebitis is also a risk factor[9] for eye diseases such as retinal arterial or retinal vein occlusions, cataracts, and age-related macular degeneration (AMD) diminished vision partial vision loss or permanent vision loss if untreated on an emergency basis. Not only do they share multiple risk factors, but they have a strong underlying pathological process.

3.INVESTIGATIONS

The detection and management of associated systemic disease is aimed principally at reducing the risk of future vascular occlusive events, both ocular and systemic. Blood pressure (BP), Erythrocyte sedimentation rate (ESR) or plasma viscosity (PV), Full blood count (FBC), Random blood glucose, Further assessment for diabetes if indicated Random total and high-density lipoprotein (HDL) cholesterol. Additional lipid testing may be considered. And routine investigation[10] for systemic end-organ damage related to the cardiovascular risk factors commonly found in patients with RVO. Along with these fundus examinations through ophthalmoscope and OCT, FFA is mandatory to rule out retinal changes.

3. **RETINAL VASCULAR CHANGES[4]**

The retinal vessels the eye provides ophthalmologists with a biomarker for what may be happening in the brain or the small vessels of the heart

Changes in microvasculature-ocular side effects of cardiovascular disease appear in disorders that share a common pathway—atherosclerosis, "This affects blood vessels throughout the body, including small arteries supplying blood to the retina and optic nerve.Arteriovenousnicking[11] is another ocular sign that may reflect the effects of blood pressure and other systemic factors on the retinal vasculature. Nicking appears[12] in areas where retinal arterioles cross above venules, causing constriction in the underlying venule.

Emboli and occlusions. In addition to these local changes, small bits of cholesterol can break off from bigger plaques in the carotid artery and get pushed into the eye's smaller vessels. With central retinal artery occlusion[13] [CRAO], you might see a small embolus or thrombus wedged in the central retinal artery, blocking blood flow to the eye. The retina becomes fairly pale[14] and arterioles may be very narrowed. Nearly complete vision loss may occur. "With a branch retinal artery occlusion,[15] partial vision loss can occur, but symptoms depend upon the location of the blockage.

Ischemic events-Complete blockage of blood flow may cause ischemic events [16] in the eye and sudden partial or complete visual loss in one eye. "Signs of ischemic optic neuropathy[17] include a pale and/or swollen optic nerve and hemorrhages,"

Fig 1 CRAO

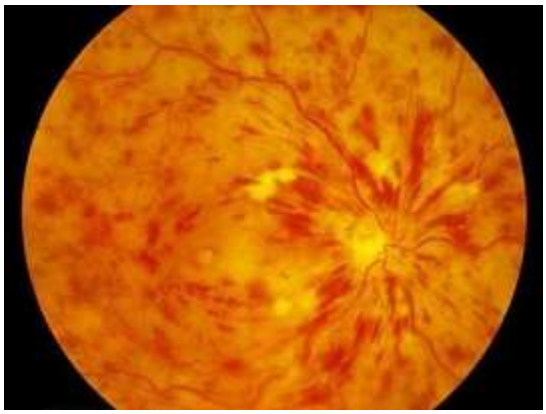

Fig 2 CRVO

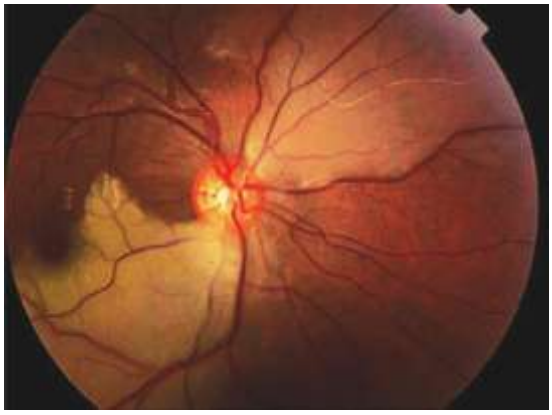

Fig 3- BRAO

Fig4 - BRVO

zRVO and stroke: In uncontrolled hypertension, the ophthalmologist may see "flame-shaped haemorrhages, exudation, and swelling," Cotton-wool spots also may be evident. The clinician[18] also may note signs of another important cardiovascular risk factor that can occur in patients with hypertension.

4. TREATMENT: Shared underlying mechanism and risk factors suggest the potential for shared solutions, "Some of the therapy that controls lipid mechanisms, inflammation, and blood pressure treatments traditionally used for cardiovascular disease— are now being

explored as possible therapies for prevention and treatment of eye diseases related to aging."

Statins-[19] cholesterol-lowering drugs have also been found to be protective against retinal vascular complications. **CETPIs** cholesterol esterase transfer protein inhibitors **Fenofibrate.** Traditionally used to treat cardiovascular disease, fibrates more directly affect specific pathways of lipid metabolism than they do total levels of cholesterol "Although ophthalmologists are proficient at diagnosing ocular ischemic events, sometimes the underlying cause can be elusive, and that's where referral for a cardiovascular workup, such as an echocardiogram. Additionally, they may benefit from some of the same types of **treatment** and Carotid endarterectomy in case of carotid artery aneurysms.

DISCUSSION: The eyes are a window into the heart. The many benefits of a comprehensive eye exam are not exclusive to eye health. During a comprehensive[20] eye exam, an ophthalmologist may be able to detect more than 20 chronic health conditions. Preventative measures[21] such as following a healthy diet, exercising more, and quitting smoking combined with regular comprehensive eye exams and visits to your primary care provider can help reduce the risks of cardiovascular and eye diseases. Furthermore, ongoing coordination between the eye care professional and the primary care provider can better ensure that patients receive the comprehensive health benefits of their regular eye examination. Individuals with risk factors such as diabetes, high blood pressure, or a family history of eye disease should not delay and follow Rutucharya and Dinacharya, Rutushodhana following Ayurvedic Netrakriyakalpa regularly.

CONCLUSION: It is important to remember that your eye care professional will recommend further steps if your eye exam reveals a potential health problem. It's also important to keep a closer watch on patients who are considered to be at high risk, the category includes those who are obese or have elevated blood pressure, cholesterol, or blood sugar levels, as well as those who have a history of heart disease. "They are all at risk for developing changes in the retina."

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