

CONCEPT OF DIABETIC RETINOPATHY IN AYURVEDA**Dr. Priyanka Joshi^{1*} and Prof. B. Mukhopadhyay²**¹PhD Scholar, Department of Shalaky Tantra, IMS, BHU.²Prof. Department of Shalaky Tantra, IMS, BHU,Article Received on
26 June 2019,Revised on 17 July 2019,
Accepted on 07 Aug 2019

DOI: 10.20959/wjpr201910-15364

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Shalaky Tantra, IMS, BHU.**ABSTRACT**

Visual impairment is a significant health problem. One of the major cause of legal blindness in the world is Diabetic retinopathy. In Ayurveda there is no direct reference about diabetic retinopathy however it can be taken in terms of alterations in the mechanism of Dhatu Parinamakriya (metabolism) that leads to combinations of various symptoms. The Poshaka Dhatus is supplied by Rasa-Rakta Dhatus through various Srotas to various organs of the body. The vitiated Doshas get Sthana Samsraya in Netra and lead to various

pathological processes and the pathology can be given name as Pramehajanya Netra Vyadhi or diabetic retinopathy.

KEYWORDS: Diabetes mellitus, Diabetic retinopathy.**INTRODUCTION**

Many eye diseases have been enumerated in Ayurveda. This science of life has given importance to the eye care. Visual impairment is a significant health problem; one of the major cause of legal blindness in the world is Diabetic retinopathy. As the numbers of diabetic patients are increasing specially in India numbers of cases with reported diabetic retinopathy have also increased. It is a burning issue to the patient as well as practitioners. Diabetic retinopathy is a complication of diabetes and has an overall prevalence of approximately 23% in people with diabetes. Diabetes Mellitus is a common metabolic disorder in which there is high blood sugar level over a prolonged period and occurs in one of two forms: Type1 or Insulin Dependent Diabetes Mellitus (IDDM) and Type2 or Non-Insulin Dependent Diabetes Mellitus (NIDDM). Diabetic retinopathy is most common and serious complication of Diabetes and changes in the retina are observed by 10 years of Diabetes history or even earlier due to modified lifestyle in present era. Roughly 50% of patient

develop diabetic retinopathy after 10yr, 70% after 20yr and 90% after 30 yr of onset of disease, with increase in the life expectancy, the incidence of diabetic retinopathy has increased. It is estimated that 80.45 million people in India will have diabetes by the year 2030.^[1] Diabetic Retinopathy is essentially a microangiopathy affecting retinal precapillary arterioles, capillaries and venules. Diabetic Macular oedema is a consequence of diabetic retinopathy and a common cause of blindness in the working age population. It affects approximately 7% of people with diabetes (>24 million people worldwide).^[2]

In Ayurved Diabetes is included under Madhumeha. Madhumeha has got two different types of pathogenesis; the concept of Avarana and Dhatu kshaya.^[3] Prameha usually predominant with Kapha Dosha, by the passage of time other Doshas also get predominant.^[4] The important dushya involved in the samprapti of Prameha are Kleda Mamsa, Meda thus making it as Krichrasadhya. In Shalakya Tantra there is no direct reference about the diabetic retinopathy, however in Prameha there occurs Indreeya Dourbalyata, chakshurendriya is one of the pradhan indriya so it can be taken that if Prameha is untreated it can cause pramehjanya chakshurendriya dourbalyata. In Prameha the major Sampraptighataka is Kleda which contributes much to the Upadrava Rogas. In classic text Charak Samhita it is said in the Samanya Purvarupa of Prameha “Hrinnetra jihwa sravanopadeha”^[5] this clearly indicates that vital organ like netra also gets affected in Prameha roga.

Pathogenesis of Diabetic Retinopathy As Per Modern And Ayurveda

According to the modern science the main pathogenesis involved in Diabetic Retinopathy is microangiopathy in terms of microvascular occlusion and leakage which affects the retinal precapillary arterioles, capillaries and venules.^[6] Normally capillaries are lined by single layer of endothelial cells and basement membrane but in retinal capillaries, they are also lined by pericytes. These pericytes are responsible for structural integrity of vessel wall. These pericytes are specifically lost early in diabetic retinopathy. Physical weakening of capillary walls due to loss of pericyte result in localized saccular outpouching of vessel wall, termed microaneurysm. These may rupture and cause retinal haemorrhages resulting in deep haemorrhages (dot and blot haemorrhages) and superficial haemorrhages (flame shaped). Also there occurs breakdown of blood retinal barrier which causes leakage of plasma constituents in the retina and form hard exudates and retinal oedema. This results in vision impairment in the patient. The vitiated Doshas specially kapha dosha get Sthana Samsraya in Netra and cause srotoavrodha leading to srotodusti. In Ayurveda the concept of Sroto dusti is given

which includes four types: Atipravriti, Sanga, Siragranthi, Vimarga Gaman. Each of these Srothodustis are present in various stages of retinopathy. The development of microaneurysms can be correlated with Siragranthi stage, retinal vessel occlusion to Sanga, retinal hemorrhage to Vimarga Gamana and neo vascularization to Ati Pravriti. Due to prolonged uncontrolled diabetes mellitus there occurs microvascular occlusion which in turn leads to retinal ischaemia. In an attempt to revascularise the hypoxic areas of retina there occurs formation of arteriovenous shunts from arterioles to venules associated with significant capillary occlusion are referred as intraretinal microvascular abnormalities (IRMA). Retinal hypoxia leads to release of vasoproliferative substance such as vascular endothelial growth factor (VEGF). It results in development of neovascularisation i.e. proliferation of new vessels from the capillaries in the form of neovascularisation at the optic disc or elsewhere in the retina.

Rasa-Rakta vikshepana (blood circulation) is function of vyanavayu. In case of diabetic retinopathy vascular disorder may arise due to Pranavritta vyana. This initially causes retinal ischemia and followed with successive cascade of retinopathic changes like neovascularisation, cotton wool spots and intra retinal microvascular abnormalities (IRMA) Symptoms of Pranavritta vyana are Sarva indriya sunyata, smriti kshaya and bala kshaya.

Dhatwagnimandya leads to accumulation of Ama at the tissue level. This can be correlated with generation of reactive oxygen species (ROS), activation of polyol pathway and accumulation of Advanced Glycation End products (AGEs), which are the main pathways of development of retinopathy in diabetics.

Sense organs perceive their objects with the help of Pranavayu. Vyanavayu is responsible for gati or conduction. Hence vyanavayu plays a significance role in Rasavikshepana. Pranavayu will restrict the gati of conducting vyanavayu, the Indriya will not be able to perceive its visaya. In case of diabetic retinopathy vascular disorder may arise due to Pranavritta vyana. This initially causes retinal ischemia and followed with successive cascade of retinopathic changes like neovascularisation, cotton wool spots and intra retinal microvascular abnormalities (IRMA) Symptoms of Pranavritta vyana are Sarva indriya sunyata, smriti kshaya and bala kshaya and the treatment is Urdwa Jatrugata cikitsa.^[7]

Madhumeha is also known as Ojameha. The vitiated dosha obstructed the path of Vata and vata carried the Ojas to the basti According to Chakrapani aparajaya occurs in

madhumeha and the seat of apra oja is ten Mahamula dhamanis. Loss of Oja leads to loss of dhamanis as per ashrayaashrayeesambandha. This can be correlated with loss of capillaries which in turn leads to retinal hypoxia and neovascularisation.

CONCLUSION

In Ayurveda there is no direct reference about the diabetic retinopathy however there is indication that vital organ like eye gets affected in Prameha roga. The pathogenesis of Diabetic retinopathy can be considered in terms of various stages of srotodusti. The visual impairment in Diabetic retinopathy can be correlated with Timira in Ayurveda. Understanding Diabetic retinopathy in terms of Ayurveda helps in the ayurvedic management. Many studies have been conducted on Diabetes but its complication like Diabetic retinopathy have not been given importance for research purpose. Once the disease is understood in terms of Ayurveda herbal drugs can be used for its management and new research can be conducted for better visual prognosis in diabetic retinopathy patients.

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