

Ayurvedic Management of Diabetic Retinopathy-A Single Case Study

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ABSTRACT

Diabetic Retinopathy refers to retinal changes seen in patients with diabetes mellitus. In Ayurveda, there is no direct reference for Diabetic Retinopathy but the symptoms explained are correlated with Timir. Pujyapada Muni in his work 'Netra Prakashika' explains Timir as the Upadrava of Madhumeha⁽¹⁾. According to symptoms and complications of Diabetic Retinopathy it can be considered as Prameha/ Madhumeha janya Timir. All the three doshas along with rakta dosha and saptadhatu with four internal Drishtipatalas of eyes are affected in Madhumehajanya Timir in different stages of disease. The present case study is regarding the Ayurvedic approach to the Diabetic Retinopathy as Madhumehajanya Timir. In present case study a 58 years old female patient came to OPD of Shalakyatantra with the complaint of blurring of vision since 6 months. Patient is K/C/O diabetes mellitus since 8 years and is on regular medication. Patient is treated with Vasant Kusumakar Rasa for 1 month along with Tab BGR-34 for 6 month duration. At the end of 6 months patient got significant relief.

KEYWORDS: Diabetic Retinopathy, Madhumehajanya Timir, Vasant Kusumakar Rasa, Tab BGR-34

I. INTRODUCTION

With increase in life expectancy of diabetes mellitus, the incidence of Diabetic Retinopathy has increased. DR is a leading cause of blindness. Hyperglycemia in uncontrolled DM is the starting point for development of DR.⁽²⁾ Hyperglycemia produces microangiopathy in which retinal cell damage occur along with loss of pericytes and thickening of basement membrane of capillaries. Haematological and biochemical changes include increase platelet adhesiveness, blood viscosity, RBC deformation and rouleaux formation. All these changes leading to breakdown of blood retinal barrier which leads to retinal oedema, haemorrhages and leakage of lipids (hard

exudates)⁽³⁾. Weakened capillary wall produces micro aneurysms and haemorrhages. Microvascular occlusion produce ischaemia and its effects and AV shunts i.e. IRMA (Intraretinal microvascular abnormalities). Neovascularisation of retina is induced by pro angiogenic factors such as VEGF, PDGF which are released as a result of ischaemia.

DR has been classified as-

- I. Non-proliferative diabetic retinopathy (NPDR)
 - Mild NPDR/ Background NPDR
 - Moderate NPDR
 - Severe NPDR
 - Very Severe NPDR
- II. Proliferative diabetic retinopathy (PDR)
- III. Diabetic Maculopathy
- IV. Advanced diabetic eye disease (ADED)

Ophthalmoscopic features of NPDR include microaneurysms, retinal haemorrhages both deep (dot and blot haemorrhages) and superficial (flame shaped), retinal oedema, hard exudates, cotton wool spots, venous abnormalities (beading, looping and dilatation), IRMA. Occurrence of neovascularization over the changes of very severe NPDR is a hallmark of PDR. Diabetic maculopathy is associated with clinically significant macular oedema. ADED is end result of uncontrolled PDR. In Ayurveda, DR can be considered as Madhumehajanya Timir. Avarana and Dhatu Kshaya too have important role in development of DR due to prolonged and uncontrolled hyperglycemia. Agnimandya related Amaformation has a role in pathology of DR which is quite similar to oxidative theory of DR explained in modern pathology⁽⁴⁾. DR possesses all the four features of Strotovaigunya i.e. Atipravritti, Sanga, Siragranthi and Vimargamana⁽⁵⁾. Sangas manifested by the retinal vessels occlusion leading to hypoxic related ischaemia. Siragranthi is nothing other than development of microaneurysms. Vimargamana is the retinal haemorrhages and Atipravritti can be correlated with neovascularization. Urdhwagata Raktapitta,

OjasKshaya, Raktavritta Vata, Pranavritta Vyana are other cause in development of DR. So asperetiopathological mechanism the first and foremost care should be given to prevent Madhumeha. Treatment given in modern science are metabolic control of DM, intravitreal anti-VEGF drugs, surgical treatment i.e. Pars Plana Vitrectomy (PPV). TabBGR-34 (Blood Glucose Regulator) is an Ayurvedic derived product that is sold in India as an over-the-counter pill for the management of diabetes. Tab BGR-34 was co-developed by two national government-owned laboratories. National Botanical Research Institute (NBRI) and Central Institute for Medicinal and Aromatic Plants (CIAMP) under the patronage of the Council of Scientific and Industrial Research (CSIR). It was developed in 2015 and launched commercially in 2016. CSIR has claimed BGR-34 to be the first Indian ayurvedic anti-diabetic drug and the laboratories were awarded the CSIR Technology Award in 2016 in the Life Sciences category. Vasant Kusumakar Rasa tablet contains following ingredients along with the part used in formulation of tablet: Daruharidra(Stem), Vijaysar (Heart wood), Gudmar(Leaf), Manjeeshtha (Root), Methika(Seed), Giloy (Stem). The present article deals with single case study regarding the Ayurvedic approach to the Mild/Background NPDR as Madhumehajanya Timir.

AIMS AND OBJECTIVE

To assess the effect of Vasant Kusumakar Rasa and Tab BGR-34 in Background NPDR.

MATERIAL AND METHODS

Case Report:

Patient Name-XYZ

Age/Sex-58 years/Female

OPD No.- 5357

Place- Nagpur

Occupation- Housewife

Date of registration- 11/02/2022

Chiefcom plaints- Blurring of vision since 6 months

H/O Present illness-

Patient had history of high blood glucose level before 2 years. After taking anti diabetic treatment for 3 months her blood glucose level is under control. But she experienced gradually blurring of vision. Since 6months she complains of increase in intensity of blurring of vision so she came to OPD of Shalakyatantra department of Shree Ayurved Mahavidyalaya, Nagpur.

Past History-

K/C/O- Diabetes mellitus since 8 years

On medication- Tab Vildader 50mg OD (morning)

Tab Glimp-M2 OD (afternoon)

K/C/O- Hypertension since 5 years

On medication- Tab Telvilite-AM 40mg OD (morning)

Family History-

No relevant history found

On ocular examination-

Visual acuity (Aided) RE-6/9

LE-6/9 (P)

Eyelid-normal, Conjunctiva-no congestion, Cornea-clear, Anterior chamber- normal depth, Iris colour pattern normal, Pupil-NSRTL, Lens-in situ

Fundus examination

RE- Disc- normal

Macula- Soft exudates

Micro aneurysm

Dot Haemorrhages

LE- Disc- normal

Macula- Soft exudates

BE- Signs of Background NPDR

Treatment Protocol

1. Tab BGR-34 twice a day for 6 month duration.

Two tablet twice a day should be taken 30 minutes before meal.

2. Vasant Kusumakar Rasa once a day for 1 month duration.

Patient is given following medication and follow up is taken after 6 months.

MODE OF ACTION

The raw materials for Tab BGR-34 are derived from six plants: Daruharidra (Berberis aristata), Giloy (Tinosporacordifolia), Vijaysar (Pterocarpus marsupium), Gudmar (Gymnema Sylvester), Manjeestha (Rubiocordifolia) Methi (fenugreek). The formulation releases 34 active phyto constituents which work as DPP-4 Inhibitors to regulate blood glucose levels. It ensures proper carbohydrate metabolism by influencing the various enzymatic processes. Daruharidra naturally improves functional capacity of vital organs. Manjeestha exerts antioxidant activity and protects tissues from oxidative damage. Vijaysar strengthens body cells and helps maintain effective carbohydrate metabolism. Methi checks over fatigue and weakness, nourishes and tones vital

organs. Giloy boosts body defence system and modulates immunity by supplementing essential micro nutrients. Gudmar reduces the absorption of carbohydrates and prevents long term complications. Vasant Kusumakar Rasa is extensively used for treating high sugar levels because it has Deepan (appetizer) and Pachan (digestion) properties which reduce Ama and improve metabolism that helps to control blood glucose levels⁽⁶⁾. Its Rasayana property is also helpful in managing general weakness and controlling blood glucose levels. It is a potent anti-diabetic drug which possibly acts due to combined effect of each ingredients of drug⁽⁷⁾. It pacifies tridosha, i.e. vata, pitta and kapha. Oxidative stress and vascular endothelial growth factor level decreased by treatment with Vasant Kusumakar Rasa. It prevents DR by its ability to act on multiple biochemical pathways implicated in pathogenesis of DR. It is a combination of Swarna Bhasma, Rajat Bhasma, Vanga Bhasma, Naga Bhasma, Lauha

Bhasma, Abhraka Bhasma, Pravala Pishti, Mukta Pishti, Rasa Sindur, Vasa, Haldi, Ikshu, Kadali, Kamal, Chameli, Shatavari and Chandan. Swarna Bhasma⁽⁸⁾ and Rajat Bhasma act as an antioxidant and free radical scavenger hence it reduces the complication of Diabetes mellitus like neuropathy, coronary heart disease, retinopathy and stroke. Vanga Bhasma⁽⁹⁾ is useful in reducing the symptoms of diabetes mellitus like fatigue and general weakness. Naga Bhasma includes Ushna Virya (hot in action), Tikta Rasa (bitter taste) and cures Vataja Kaphaja Prameha. Rasayana effect of Lauha Bhasma reduces the degree of oxidative stress signaling pathways and by that preventing insulin resistance and B-cell dysfunction and ultimately controlling blood sugar level and its Medohara (hypolipidemic) effect decreases the high lipid level. Abhraka Bhasma and Pravala Pishti has Deepan and Pachan property and hence help in improving metabolism which ultimately control blood sugar level.

II. OBSERVATION AND RESULT

Observation	Before treatment	After treatment
Visual acuity (Aided)	RE- 6/9 LE- 6/9 (P)	RE- 6/9 LE- 6/9 (P)
Fundus examination	RE- Disc normal Macula- Soft exudates Micro aneurysm Dot haemorrhages LE- Disc normal Macula- Soft exudates BE- Signs of Background NPDR	BE- Disc normal Macula- normal General fundus- occasionally soft exudates

After 6 months of treatment patient reported gradual improvement in presenting complaints.

III. DISCUSSION

Diabetic Retinopathy is the most common cause of vision loss for people with diabetes. So, an attempt has been made to study the complete aspect of disease and to find the best possible way for the betterment of mankind.

In modern, drugs are not acceptable due to their drawbacks, drug dependency and drug withdrawal syndrome. World Health Organization Expert Committee on diabetes has encouraged that traditional medicinal herbs should be investigated on large scale for discovering safe and effective oral anti-diabetic agent.

Vasant Kusumakar Rasa has Deepan and Pachan properties which reduce Agnimandya at tissue level i.e. Dhatwagnimandya and

improve metabolism that helps to control blood glucose levels.

Madhumeha janya Timir mainly caused due to vitiation of Tridosha and Vasant Kusumakar Rasa has property of tridosha ghnta. Tab BGR-34 contains such herbs that are rich source of antioxidants preventing oxidative damage to vital organs. Tab BGR-34 restores carbohydrate metabolism by inhibiting various enzymes like inhibiting DPP-4 enzymes. Hence, it acts as Neuroprotective, Rejuvenator, Anti-oxidant and Anti-diabetic drug.

IV. CONCLUSION

The present study investigated the protective effect of an Ayurvedic herbo-mineral

formulation, Vasant Kusumakar Rasa and BGR-34 in Diabetic Retinopathy. Considering the entire factors regarding treatment of Background NPDR, Vasant Kusumakar Rasa and Tab BGR-34 act as an adjuvant treatment for prevention and treatment of DR in addition to the conventional treatment aimed at controlling blood glucose level which helps in management of disease. In above case study, significant result was obtained in symptoms and signs after treatment. There is no adverse effect of drug. However, Vasant Kusumakar Rasa cannot be used for longer duration due to metallic formulation. Hence, Vasant Kusumakar Rasa and Tab BGR-34 internally helps in management of Background NPDR.

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