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Diabetic retinopathy: A critical review from ayurvedic prospective

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Abstract

Ayurveda is renowned to be the best elixir of Life. It had a divine evolution from Lord Brahma and development through many ancient seers who were transcendental and in search of satisfactory solution for the suffering humanity.

It is estimated that DM affects 4% population of the world. Nearly, all people of type 1D.M. (IDDM) and 75% of type 2 D.M. (NIDDM) will develop Diabetic Retinopathy after 15 years duration of D.M 18% will develop diabetic retinopathy in less than 15 years duration of D.M. India being the diabetic capital of the world (according to WHO) is feared to end up with an alarming 11.4 million of type 2 D.M. individuals developing diabetic retinopathy by 2025. About 20 years ago, diabetic retinopathy was 17th cause of blindness. Now it has become 6th cause of blindness. As far as the working class or industrial areas are concerned diabetic retinopathy is 2nd leading cause of blindness in working age group (<55years old) in industrial countries.

Keywords: Ayurveda, DR, Life style modification, Prevention.

Introduction

In our ancient literature “chakshu” (faculty of vision) is considered as prime sense organ out of all senses. It enlightens the body like sun to the universe. So, the organs of this faculty i.e. eyes are of great importance. Eyes are said to be the windows of the soul.

As it became difficult to grasp it as a whole owing to its vastness, it was divided into eight specialties of which shalakyta tantra is that branch which deals with the diseases of supraclavicular area.

In nature, every living organism is so specially created in its anatomical and physiological framework by which it can maintain the homeostasis and face any challenges to maintain its own life. Being the most developed link in the evolution chain, human being have the best possible defense mechanism and self-compensatory power against the wide range of health related challenges. But due to changing lifestyle, man has started surrendering before the machines created by him, which in turn lead to the sedentary life style owing to less use of his natural efficiencies. This, along with enormous amount of stress and strain have created a strong platform for a good number of life style diseases and Diabetes mellitus is one of them.

Aims and Objectives

To study DR from ayurvedic and modern science point of view.

Conclusions

Diabetic retinopathy can be correlated with pramehaja timira on the basis of symptoms.

Disease review

Physiology of chakshurendriya - (vision)

Visual perception, like all other sensory phenomenon, is dependent upon the state of mind and soul. Acharya Charaka has described this process as the conjuncture of soul, mind and the sense organ with the objects. Kashyapa classifies senses into Sannikrishta Indriyas and Viprakrishta Indriyas. Eyes and Ears are the Viprakrishta Indriyas, wherein object need not directly fall on the senses. Eye has developed sufficient skills to perceive the object from a sufficiently large distance. The theory of Panchapanchaka given by Acharya Charaka depicts the phenomenon of sensory perception by enumerating the five important factors that take part in this process.

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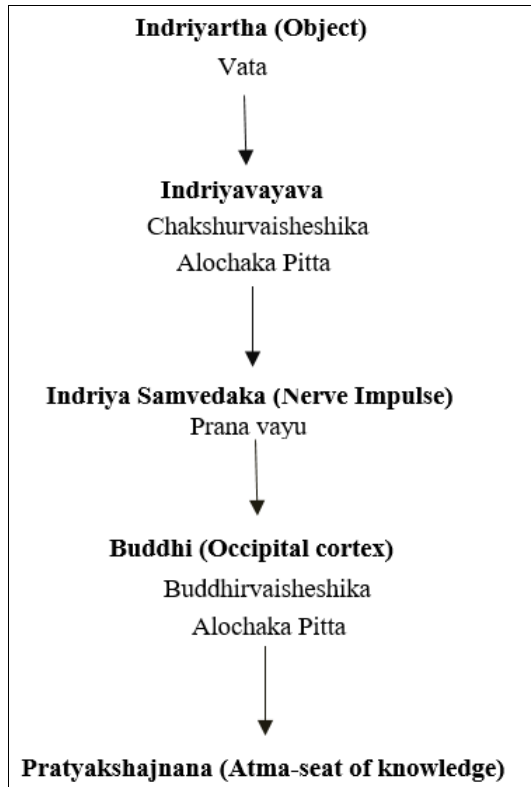
Table 1: Basic parts of gyanotpati

Basic parts of gyanotpati	Visual perception
Indriya	Chakshu
Indriyadravya	Teja
IndriyaArthas	Roop
IndriyaAdhithana	2 netras
Indriyabuddhi	chakshurbuddhi

Role of Doshas in visual perception

Vayu is the stimulator of all sensory organs and makes them to perceive their respective objects.

The Role of Alochakapitta in Visual Perception.

Flow chart showing mechanism of vision**Disease review****Diabetic retinopathy in ayurvedic concepts^{1*}**

It is true that there is no direct reference for Prameha causing Netra vikaras in any of our treatises. But there are many references which indirectly point out that Prameha can cause netra rogas as its upadrava.

In Sushruta samhita while describing upadravas (complications) of prameha, pratishyaya (rhinosinusitis) is one of the upadravas. Along with these the other complication mentioned there is Pandu. Pratishyaya in complication stage causes serious ocular problems. Pandu also leads to Hatendriya lakshana in its progressive stage as described by Acharya Charaka. Also under upadravas according to doshika predominance of Prameha, Pita vinamutranetrata is categorized under upadrava of Pittaja Prameha by Acharya Sushruta, which reflects towards ischaemia of retina.

Thus all these references give a clue towards involvement of eyes as a complication of Prameha.

In Sushruta samhita while describing the treatment of Prameha pidika it is said that in the poorvaroopo avastha of vyadhi, treatment should be apatarpana, Vanaspati kashaya

and vasta mutra. If this treatment is not followed then there is increased madhurya in mutra, sweda and sleshma which leads to development of roopa avastha i.e Prameha vyadhi. In this stage of vyadhi ubhaya samshodhana should be done, if it is not performed the doshas vitiate more and cause dushti of Mamsa and Rakta dhatus, due to which shophya and other complications of Prameha e.g. Prameha pidika occur. In Sushruta samhita while describing chikitsa of Madhumeha in Madhumeha chikitsa adhyaya, at last there is description of Tuvarakadya anjana containing tuvarakamajja, saindhavaanjanana and tuvaraka taila, which is said to be useful in many netra rogas like timira etc. So it may be an indirect reference of timira occurring due to Madhumeha.

There is some similarities between timira and prameha so Diabetic

Retinopathy features can also be correlated accordingly.

Understanding pramehajanya timira

There is no direct reference regarding the ophthalmic complications of Diabetes in our classics apart from Netraprakashika which has highlighted Timira as a complication of Prameha. Hence we can analyse it as an anuktha vyadhi taking into consideration; the vitiated doshas, dushyas and other vyadhi ghatakas.

Timira as prameha upadrava

In our classics it has not been told that Timira may be an upadrava of Prameha. Instead the only term related to eyes described in pittaja prameha upadrava is peeta netrata by Vagbhata which requires further clarification. However it was Poojya Pada Mahamuni, one of the luminaries of Ayurveda from South India in his work -Netra Prakashika" who clearly mentioned that prameha can cause netra vikaras. Unfortunately no further details regarding the disease are available in his book. Hence for a better understanding of prameha related ophthalmopathies, it is essential to know the root pathogenesis of Prameha and how it leads to multi system involvements.

What makes prameha a mahagada?

Prameha is considered as a Maharoga due to its Anushangi (no cure/continuing nature), multiple dhatu involvement, inherited nature, deep rootedness etc. It is one of its kind where the prodromal symptoms persists even after the manifestation of clinical symptoms and in its complication stage. This may form an important connecting link between Prameha and Timira; so also with Diabetic Retinopathy. It has Subahupadravas i.e complications affecting vital structures in the body viz. Marmas. Siras is the prime marma and when it affects, there must have its affection in eyes also; which are located in the former.

Purva rupa of timira

No specific prodromal symptoms have been mentioned for Timira. However Samanya poorvaroopo of netrarogaie. Dirtiness, congestion, lacrimation, itching, stickiness, heaviness, burning sensation, pricking pain, redness etc. can be considered. There may be feeling as if the cavity of the eye lids is full of painful bristles, impairment in vision or function of the eyes as compared with what they were before. As soon as the above features are seen, the intelligent clinician should regard that (eye) to have become afflicted with doshas.

Rupa of timira

1. According to involvement of Patalas.
2. According to vitiation of Doshas.

1. According to involvement of patalas

Table 1: Patala gata timira symptoms as per various authors

	Patala Symptoms	Su.Sh.	B.P.	As.S	As.H	M.N	Y.R.	Vang.
1.	Blurred vision	+	+	+	+	+	+	+
2.	Haziness of vision	+	+	+	+	+	+	+
	Visualization of false images	+	-	-	+	+	+	+
	Distant objects appears to be near and near objects appears to be far away	+	+	+	+	+	+	+
	Unable to locate the eye of the needle	+	-	-	+	+	+	+
3.	Visualization of objects situated above and not below	+	+	+	+	+	+	+
	Objects appears as if covered with cloths	+	+	+	+	+	+	+
	Details like ear / eyes are not visible when looked at any face	+	+	+	+	+	+	+
	Colouring of drishti	+	+	+	+	+	+	+
4.	Complete obstruction of drushti	+	+	+	+	+	+	+

Samprapti Ghatakas:

Dosha - Tridosha with Raktha. Pitta-Kapha pradhana

Dushya - Rasa, rakta, mamsa, meda, majja, lasika, vasa, oja

Agni - Jataragni dusti leading to Rasa-Raktha-Medoagni dushti

Ama - Jataragni and Dhatwagni mandyajanya

Srothus - Rasavaha-Raktavaha-Mamsavaha-Medovaha-Udakavaha

Srothodusti Prakara - Sanga, Siragranthi, Vimargagamana, Atipravritti

Udbhava sthana - Amashaya

Sanchara sthana - Rasayani (Microvasculature)

Vyakta sthana - Drishti (Retina)

Roga marga - Madhyama Roga marga as Shiras is pradhana marma

Srotodushti with diabetic retinopathy comparison

Sanga	Occlusion of retinal vessels
Siragranthi	Aneurysm
Atipravruthi	Neo vascularization
Vimargagamana	Retinal haemorrhage

Pramehajanya timira viz -a -viz diabetic retinopathy.

1. The term Timir means excess accumulation of kledata. Diabetic Retinopathy is also characterized by excess accumulation of kledata in rasayanis & is manifested in fundus in the form of exudates.
2. Blurring of vision may be the only presenting symptom of DR, the Timir also gives the same meaning. Timir with different dosha predominance can be compared to different stages of DR.

Table 2: Showing Comparison between symptoms -Timirand Diabetic Retinopathy

Timira lakshana	Diabetic retinopathy symptoms
Vyaviddamiva pasyati.	Hazy,spotty,blurry vision in NPDR and PDR
Jalanikeshanmashakan rashminchopekshite.	Spider web appearance caused by floater in PDR with Vitreal haemorrhage
Aditya khadyotha pasyati.	Flashes of light (in PDR)
Pasyed sukshmapytyrthaha.	Difficulty in reading or seeing close up(in DR with CSME)
Dhoomadhoomranichekshathe.	Blackish and smoky vision
Raktani tamansi vividhani...chekshate.	Erythrospia (DR with VH)

Hence Diabetic Retinopathy can be compared to Timira involving Dwitiya and Tritiya Patalas.

Sadhya-Asadhyata

Pramehajanya Timira is easily curable when the Doshas are limited to firstand second Patala; As it gets the stage of chronicity, becomes Yapya by the dushti of third Patala. Timira attains the incurability when the Doshas reach fourth Patala wherein surgical intervention is advocated as in case of Kaphaja Linganasha.

Diabetic Retinopathy being an upadrava of Prameha; is Yapya for chikitsa. Similarly Timira with its ashraya sthana in Dwitiya Patala(Early stages of DR) becomes sadhya for chikitsa provided along with Timira management, if Prameha is also treated. If timira takes ashraya in Tritiya

Patala (Advanced stages of DR) becomes Yapya for chikitsa.

Chikitsa

Management of Timira can be broadly classified into two ways-

1.Prophylactic

2. Curative – a) Local b) Systemic

1. Prophylactic measures:

One who takes regularly old ghee, triphala, satavari, patola, mudga, amalaka and barley should not be afraid of severe timira. Simply payasamade of satavari or amalakaor barley boiled with plentiful decoction of triphala and added with

profus equality of ghee alleviates timira. Also advocating various measures told in daily regimens to protect Urdhwajatra srotases—viz Anjana, Nasya, Abhyanga, Karnapoorana etc. prevents the occurrence of Timira and related disorders.

2. Curative:

Systemic: Shodhana chikitsa- Virechana is said to be ideal for anulomana of doshas specially vitiated pitta, as eye is the site of Alochaka Pitta dosha.

Local: local measures include tarpana, putapaka, seka, ascyotana and anjana.

Samanya chikitsa of Timira

In the six diseases which are palliable, blood-letting should be performed by venepuncture; the patient should also be purgated with old ghee processed with purgative drugs.

Oleation, blood-letting purgation, nasal medication, application of collyrium, murdha basti, basti kriya, tarpana, lepa or application of paste and seka, administered many times suitable to the doshas is the general treatment of timira.

Sushruta Samhita says generally all disorders of eye produced by abhishyanda & its causes and as such it should be treated quickly. Hence general line of management of Abhishyanda can also be incorporated in treatment of Timira.

Conflict of Interest

Not available

Financial Support

Not available

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