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### Review Article

## UNDERSTANDING OF *PRAMEHAJANYA TIMIRA* BY AN AYUREVDA PERSPECTIVE- A REVIEW

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### ABSTRACT

**Background:** The risk of development of blindness in diabetics increases by 20–25 times as compared to the normal population. Globally the number of people with Diabetic Retinopathy will grow from 126.6 million in 2010 to 191.0 million in 2030. 80% blindness in Diabetic Retinopathy is due to Diabetic macular edema (DME). Evidence are available in all *Ayurvedic* text that validates *Timira* can be a complication of *Madhumeha*. **Material and method:** For this review study, basic concepts of Ayurveda were analysed from all relevant classical texts of Ayurveda including *Bruhatrayi*, *Laghutrayi* and other relevant sources. Internet sources were searched for recent advances to find out the probable etiopathogenesis and management of diabetic macular edema. **Observations:** -In Sushruta Samhita while describing *Upadravas*(complications) of *Prameha*, *Pratishyaya* (rhinosinusitis) and *Pandu* are *Upadravas*. *Pratishyaya* in complication stage causes serious ocular problems. *Pandu* also leads to *Hatendriya Lakshana* in its progressive stage. *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 *Poorvaroopa Avastha* of *Vyadhi*, treatment should be *Apatarpana*, *Vanaspati Kashaya* and *Vasta mutra*. If this treatment is not

followed then there is increased *Maadhurya 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 *Shopha* and other *complications* of *Prameha* eg *Prameha Pidika* occur. **Conclusion:** Though 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*. From all the above description, we can conclude that Ayurveda is a science of life and there are many different principles, drugs and therapies that can be used for management of various forthcoming diseases.

**KEYWORDS:** Diabetic macular edema (DME), Diabetic Retinopathy, *Pramehajanya Timira*

## 1.1. INTRODUCTION

Diabetic macular edema (DME) is the accumulation of excess fluid in the extracellular space within the retina in the macular area, typically in the inner nuclear, outer plexiform, Henle's fiber layer, and subretinal space. The risk of development of blindness in diabetics increases by 20–25 times as compared to the normal population. Globally the number of people with Diabetic Retinopathy will grow from 126.6 million in 2010 to 191.0 million in 2030. 80% blindness in Diabetic Retinopathy is due to Diabetic macular edema (DME). Despite growing evidence documenting the effectiveness of routine Diabetic Retinopathy screening and early treatment, DME frequently leads to poor visual functioning which hampers normalcy in routine life.<sup>i</sup> The Wisconsin Epidemiologic Study of Diabetic Retinopathy (WESDR) found that DME incidence over 25 years among people with type 1 DM (T1DM) was 29%.<sup>ii</sup> The Diabetes Control and Complications Trial (DCCT) reported that 27% of people with T1DM had DME within 9 years of onset of diabetes.<sup>iii</sup> For people with type 2 DM (T2DM), the WESDR found that 25.4% of those who used insulin and 13.9% of those who did not use insulin had DME. Yau et al. estimated the global prevalence of DME at 6.8% among people with DM. Estimates in the United States are between 2.7% to 3.8%, with non-Hispanic whites less likely to have DME versus non-Hispanic blacks.

*Shalakya Tantra* is one of the major branches of *Ashtanga Ayurveda* deals with the *Urdhavajatrugata Rogas* (diseases above the clavicle).<sup>iv</sup> It is mainly concerned with prevention and therapeutics of diseases affecting entire area of head and neck, including eye, ear, nose and oropharynx. But in practice, *Netra Chikitsa* represents the major share of *Shalakya Tantra* due to the importance given to eyes as *Pradhana Indriya*. *Chakshu* is regarded as the most superior and prime *Indriya* and everywhere it has been protected from non-congenial factors. (E.g. During *Swedanakarmas*).<sup>v</sup> One should always perform efforts to keep eyes healthy because the whole universe will turn useless for a blind even if he is having plenty of wealth.<sup>vi</sup> But no direct description regarding *Pramehajanya/Madhumehajanya Timira* is available. Evidence is available in all *Ayurvedic* text that validates *Timira* can be a complication of *Madhumeha*. For this review study, basic

concepts of Ayurveda were analysed from all relevant classical texts of Ayurveda including *Bruhatrayi*, *Laghutrayi* and other relevant sources. Internet sources were searched for recent advances to find out the probable etiopathogenesis and management of diabetic macular edema.

## 1.2. OBSERVATIONS:

Acharya Sushruta has described 12 types of *Drishtigata Rogas*. It includes 6 types of *Timira / Kacha / Linganasha*, and 6 other diseases such as *Pitta Vidgadha Drishti*, *Shleshma Vidgadha Drishti*, *Doomdarshi*, *Gambhirika*, *Hrisvajadya*, and *Nakulandhya*. Critical analysis of these diseases shows that among these, 6 types of *Timira* or *Kacha* or *Linganasha* are confined as the disease of refractive media / immature cataract/ hyper mature cataract. *Pitta Vidgadha*, *Shleshma Vidgadha Drishti* and *Doomdarshi* are diseases related to the retina. The rest of the three diseases are related to the optic nerve and the higher visual pathway.

### Understanding *Pramehajanya Timira*

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*.<sup>vii</sup> Along with these the other complication mentioned there is *Pandu*. *Pratishyaya* in complication stage causes serious ocular problems.<sup>viii</sup> *Pandu* also leads to *Hatendriya Lakshana* in its progressive stage as described by Acharya Charaka.<sup>ix</sup> 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.<sup>x</sup> 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 *Poorvaroopa Avastha* of *Vyadhi*, treatment should be *Apatarpana*, *Vanaspati Kashaya* and *Vasta Mutra*. If this treatment is not followed then there is increased *Maadhurya 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 *Shopha* and other *complications* of *Prameha* eg *Prameha Pidika* occur.<sup>xi</sup>

***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.

**TIMIRA-** *Timira* comprises all ocular diseases in which there is a gradual diminution of vision and whose grave end result is blindness. The clinical features described for *Timira* are having broad applications and can be used to explain a number of ophthalmic problems ranging from refractive errors, posterior segment pathologies like retinal degenerations and even systemic ophthalmopathies like diabetic and hypertensive retinopathies. There is some similarities between *Timira* and *Prameha* so diabetic retinopathy features can also be correlated accordingly.

### **Hetus of Timira**

Acharya Charaka has broadly classified the causes as misuse, overuse and disuse of the senses and has regarded as —*Volitional transgression*.<sup>xii</sup> He has specified *Timira* as one among the complications of *Grahani Roga*.<sup>xiii</sup> The unctuous nasal medication causes dimness of vision (*Timira*) in the case of persons greatly afflicted with fever or grief and also in those addicted to wine. Vagbhata has termed the causes of eye diseases as *Achakshushya* or unhealthy food and activities affecting the eyes. He has confined the initiation of pathology to pitta dosha.<sup>xiv</sup>

Acharya Harita dictates the intake of *Ushna*, *Atikshara* and *Katu* food items, injury, looking at fine objects as the causative factor of eye diseases.<sup>xv</sup> In *Bhela Samhita*, constipation and suppression of natural urges have been considered as the factors responsible for *Timira*.<sup>xvi</sup>

In *Netra Prakashika*, *Pujyapada Muni* has considered excessive or deficient oil bath, working with shaking hand, witch craft, drug addiction, heavy weight lifting, looking at illuminous objects like sun, gems, gold or hot iron etc. as the factors responsible for eye diseases. He has also mentioned *Granthi and Meharoga* as causes of eye diseases.<sup>xvii</sup>

Dalhana has mentioned *Avak* and *Uchrita Shira Shayana* i.e, sleeping with the head at a too low or too higher level, *Ritu Viparyaya*, *Jvaropatapa* as some of the causes of eye diseases.<sup>xviii</sup>

### **Specific causes of Timira:**

- *Prathisyaya*(Rhinosinusitis)- *Andhya* (blindness) and severe eye diseases (may be *Timira*) results as a complication of *Pratishyaya*.<sup>xix</sup>
- Excessive bloodletting- Excessive blood loss results in blurring of vision and errors of refraction.<sup>xx</sup>
- Injury to vital parts- Trauma to *Avarta* and *Apang Marma* may lead to loss of vision either complete or partial.<sup>xxi</sup>

**Table-1 Comparing the *Nidana* of *Prameha* and its effect on *Netra*<sup>xxii</sup>**

Sr.No.	NIDANA	PRAMEHA	Effect on Netra
1.	<i>Madhura Rasa</i>	<i>Atiyoga</i>	<i>Atiyoga</i>
2.	<i>Amlarasa</i>	<i>Kledavridhi, Dravavridhi</i> <i>Adyadhatushaitilya</i>	<i>Kapha-Pitta Prakopaka,</i> <i>Rakta Vidaha</i>

3.	<i>Shuktaaranala</i>	<i>Drava-Kleda Vriddhi</i>	<i>Amla Vipaka, Kapha-Pitha Prakopa</i>
4.	<i>Masha</i>	<i>Guru-Snigdha, Madhura Rasa/Vipak</i>	<i>Usna Virya</i>
5.	<i>Kulattha</i>	<i>Apathya</i>	<i>Ghnanti Dristim</i>
6.	<i>Dadhi</i>	<i>Apathya</i>	<i>Meda-Pitta-Kapha-Sopha Krit Amla Paka Rasa</i>
7.	<i>Vega Vinigraha</i>	<i>Mootra Vega -Apana Vayu Dushti</i>	<i>Nidra-Ashru Vega</i>

**Samprapthi-** The pathological events of *Timira* begin with the increment of *doshas* at their respective sites. In reference to *Samprapthi* of *Timira*, Sushruta Samhita has clearly stated that when *doshas* gets excessively vitiated internally, pervades the *Siras* (vessels) and gets lodged in the first *Patala* of *Drishti*, the patient sees all the objects as blurred. Dalhana opines that the word *Sira* ‘denotes here *Rupavaha Sira* ‘and *Drishti* indicates inner part of the *Drishti*.

The lodgement of *doshas* in *Patalas* further prevents the functional capacity of *Patalas* and lead to *Avyakta Darshana* or blurred vision. If *Nidana Sevana* continues, then the involvement of second and third *Patalas* which lead to further deterioration of *Drishti*; whereas in 4th *Patala* affliction terminates into *Linganasha* or loss of vision. From this it can be inferred that *Siras* and *Srotases* (vasculature and other channels of circulation) are mostly involved in progression of ophthalmopathies.

Charaka states that when humours get provoked in the seats of the sense organs, they cause either the impairment or the irritation of the senses concerned.<sup>xxiii</sup> In context to *Pramehajanya Timira*, *Samanya Netra Roga Samprapthi* as mentioned by *Vagbhata* holds attention. He has emphasized *Pitta* vitiation producing etiological factors specific for ocular pathologies which are circulated via *Siras*. *Siras* may refer to **ocular vasculature** –because as such; eye is the prime *Indriya* which is *Tejomaya (Agneya)* and is actively in functional state. It requires continuous supply of nutrients and O<sub>2</sub> for its proper functioning.

**Purva Rupa of Timira-** No specific prodromal symptoms have been mentioned for *Timira*. However, *Samanya Poorvaroopa of Netraroga*<sup>xxiv</sup> i.e. 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-** According to involvement of *Patalas* and according to vitiation of *Doshas*.

**Table-2 Patala Gata Timira symptoms as per various authors**

Sr.No.	Patala symptoms	Su.Sh	B.P	As.S	As.H	Ma.N	Y.R	Vang
1.	Blurred vision	+	+	+	+	+	+	+
2.	Haziness of vision	+	+	+	+	+	+	+
	Visualisation of false images such as gnats, hairs, webs, circles, flags, mirages and ear Rings	+	-	-	+	+	+	+
	Distant objects appear to be near and near objects appears to be far away	+	+	+	+	+	+	+
	Visualization of false movements like rain, cloud and darkness	+	-	-	+	+	+	+
	Unable to locate the eye of 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 vision	+	+	+	+	+	+	+

**Table-3 Clinical features of Timira according to location of Dosha in Drishti**

DOSHA LOCATION	SYMPTOMS	Su. Sh	B.P	As.S	As.H	M.N	Y.R	V. S
Lower part	Unable to see near	+	+	+	+	+	+	+
Upper part	Unable to see distant objects	+	+	+	+	+	+	+
Sides	Unable to see sides	+	+	+	+	+	+	+
All around	Overlapping of the	+	-	-	+	+	+	+

	objects							
Centre	Double images	+	+	+	+	+	+	+
Two places	Tripple images	+	+	+	+	+	+	+
Unstable	Several images	+	-	-	+	+	+	+
Inner part	Big objects appear small and small objects appear bigger	-	+	+	-	-	-	+
Circle	Circular	-	+	+	-	-	-	-

**According to Dosh involvement:** Dominance of the particular *dosha* in the pathogenesis of *Timira* also cast particular symptom complex in this disease. The symptoms according to predominant *Dosha* are as follows<sup>xxv</sup>

**Vataja Timira** visualizes objects in abnormal or distorted way as if they are moving, hazy, black colored, views false images like spider web, hairs, flies etc. **Pittaja Timira:** like false flashes of sun, glow worm, rainbow and lightening. He views bluish and blackish colors as variegated as the feathers of a pea-cock. **Kaphaja Timira:** *Chamara* or white clouds. The patient can see objects which are not excessively small, visualizes moving clouds in a cloudless sky. All still objects appear as if inundated in water. **Raktaja Timira:** views all objects to be of variegated colors such as dark greenish, greyish or blackish and smoky all around. **Sannipataja Timira** - In *Timira* due to vitiation of all *Doshas* together, the person views, all objects as of variegated colours, scattered (spread out images) and as having double or manifold images all around. All objects appear to possess less or more than normal parts of else as luminous. **Parimlayi Timira -Pitta**, when associated with *Tejas* of *Shonita*, produces the *Timira* called *Parimalayi*. The patient sees the landscape as yellow and visualises as if the sun is rising. All trees appear to be interspersed with glow worms and flashes of light.

### **SAMPRAPTI GHATAKAS**

*Dosha* -- *Tridosha* with *Raktha*. *Pitta-Kapha Pradhana*

*Dushya* -- *Rasa, Rakta, Mamsa, Meda, Majja, Lasika, Vasa, Oja*

*Agni* -- *Jataragni Dushti* leading to *Rasa-Raktha-Medoagni Dushti*

*Ama* -- *Jataragni* and *Dhatwagni Mandyajanya*

*Srothus* -- *Rasavaha-Raktavaha-Mamsavaha-Medovaha-Udakavaha*

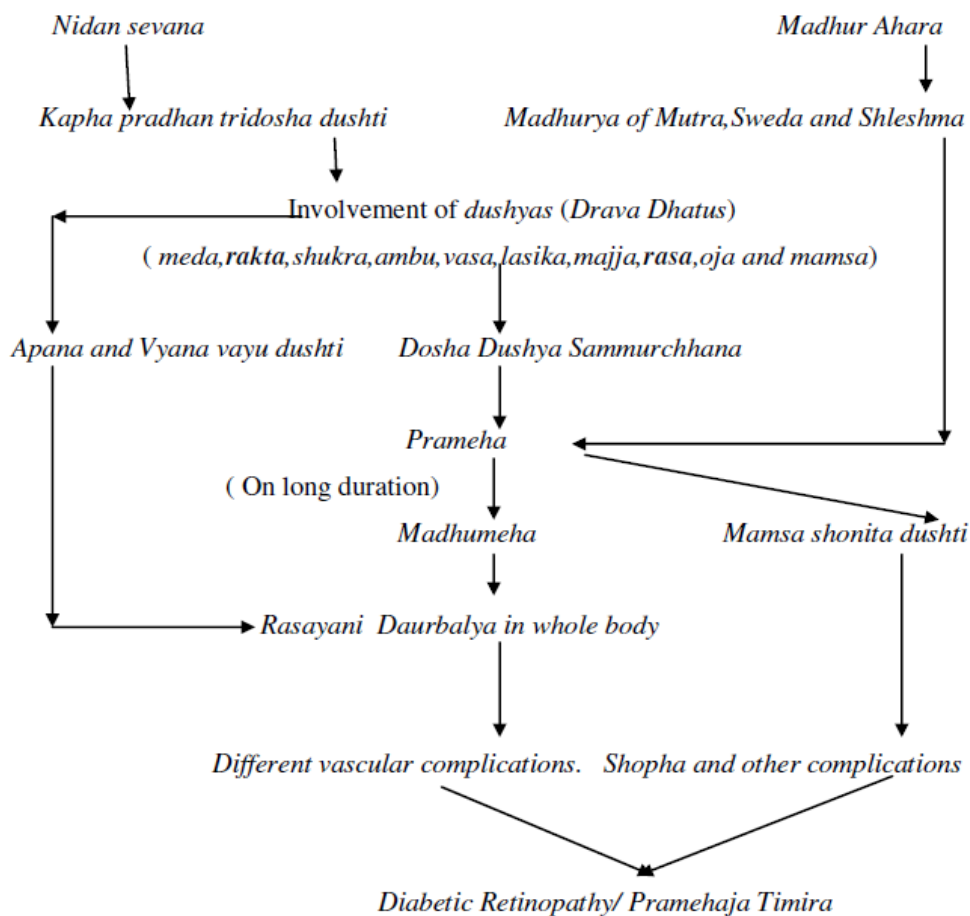
*Srothodusti Prakara* -- *Sanga, Siragranthi, Vimargamana, Atipravritti*

*Udbhava Sthana* -- *Amashaya*

*Sanchara Sthana* -- *Rasayani* (microvasculature)

*Vyakta Sthana* -- *Drishhti* (retina)

*Roga Marga* -- *Madhyama Roga Marga* as *Shiras* is *Pradhana Marma*.



**Fig. 1. Showing Samprapti of Pramehaja Timira**

**PRAMEHAJANYA TIMIRA viz –a –viz DIABETIC RETINOPATHY**

- The term *Timira* means excess accumulation of *Kledata*. DR is also characterised by excess accumulation of *Kledata* in *Rasayanis* & is manifested in fundus in the form of exudates.
- Blurring of vision may be the only presenting symptom of DR, the *Timira* also gives the same meaning.
- *Timira* with different dosha predominance can be compared to different stages of DR.

**Table-17 Showing Comparison between symptoms -Timira and DR<sup>xxvi</sup>**

<b>TIMIRA LAKSHANA</b>	<b>DR SYMPTOMS</b>
<i>Vyaviddamiva Pasyati</i>	Hazy, spotty, blurry vision in NPDR & PDR.
<i>Jalanikeshanmashakanrashminchopekshite</i>	Spider web appearance caused by floaters in (PDR with VH).
<i>Aditya Khadyotha Pasyati</i>	Flashes of light (in PDR)
<i>Pasyed Sukshmapytrthaha</i>	Difficulty in reading or seeing close up.(in DR with CSME)
<i>Dhoomadhoomranichekshathe...</i>	Blackish and smoky vision.



<i>Raktani tamansi vividhani...chekshate.</i>	Erythroprosia.(DR with VH)
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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 first and 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* where in surgical intervention is advocated as in case of *Kaphaja Linganasha*. DR being an *Upadrava* of *Prameha*; is *Yapya* for *Chikitsa*. Similarly *Timira* with its *Ashraya Sthana* in *Dwitiya Patala* (Early stages of DR) becomes *Sadya* 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/Treatment** – Management of *Timira* can be broadly classified into three ways-

**Based on Nidanas-** *Nidana Parivarjana*<sup>xxvii</sup> should be the first line of treatment.

**Based on Samprapti-** DR can be managed by exploring the following treatment principles—

1. *Pramehahara*
2. *Kledahara*
3. *Raktavahasrothodustiharana*
4. *Rakta-Pittahara*
5. *Vatanulomana*
6. *Sophahara*.
7. *Rasayana Chikitsa*.

As an *Upadrava-Charaka* has explained that *Upadravas* are produced when the disease continues for a long time, and the *Upadrava* is more severe because the bod being weak after a long duration disease. For *Chikitsa* of *Upadravas* we have to treat the basic disease first, by this the *Upadrava* itself get treated.<sup>xxviii</sup>

**PATHYA-APATHYA** (Dos and Donts)

**Pathya:** *Purana Ghrita, Triphala, Shatavari, Patola, Mudga, Amalaki, Yava, Lohita Shali*, whole grains like *Yava* and *Godhuma*, Cooked vegetables of *Jivanti, Sunishannaka, Tanduleeya, Vastuka, Chilli, Mulaka*, meat of birds and wild animals, *Karkotaka, Karavella, Vartaka, Karira, Shigru, Tarkari*.<sup>xxix</sup> *Manaso Nivritti* (withdrawing the mind from objects of senses.), *Padabhyanga, Sita Jala Prakshalana* etc

**Yogaratanakara adds-** *Peya, Vilepi, Tiktha* and *Laghu Ahara, Shalitanidula, Godhuma, Saindhava, Goghritha, Gopaya, Sitha, Kshoudra, Draksha, Kustumburu, Surana, Naveena Mocha, Matsyakshi, Punarnava* to the above.<sup>xxx</sup>

**Apathya:** *Masha, Aranala, Katuthaila, Patra Shaka, Matsya, Dadhi, Phanita, Vesavara, Pinyaka* (oil cake), *Virudhaka* (sprouts), *Ambupana, Madhukapushpa, Sura*(alcohol), *Ajangalamamsa, Tambula*, food and

drinks which are *Amla, Lavana, Vidahi, Teekshna, Katu, Ushna* and *Guru<sup>xxxi</sup> Krodha, Shoka, Maithuna, Vata, Vinmutra, Nidra, Vami, Vegavarodha, Sukshmekshana* (looking at minute objects), *Snana, Atapa, Prajalpana* (excessive talking), *Chardana<sup>xxxii</sup>*

### 1.3. CONCLUSION:

Though 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*. Detailed description and analyses of classical references is very useful for thoroughly understanding the etiopathogenesis of Diabetic retinopathies. Thus, from all the above description, we can conclude that Ayurveda is a science of life and there are many different principles, drugs and therapies that can be used for management of various forthcoming diseases.

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