

A CRITICAL CORRELATION AND PATHOPHYSIOLOGY OF MICROVASCULAR COMPLICATION OF DIABETES i.e. PERIPHERAL NEUROPATHY WITH UPADRAVA OF PRAMEHA VYADHI IN AYURVEDA

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ABSTRACT

The prevalence of diabetes is rapidly rising globally at an alarming rate and the disease is now amongst the most common non-communicable disease globally. In *Ayurveda Acharya charak* also include this under eight major diseases which show the significance of the disease. Diabetic neuropathy is one of the most common complications associated with significant morbidity and mortality. It is an outcome of metabolic derangement due to prolonged hyperglycemia in diabetes. All the symptom which explain under heading of *upadrava* by *Acharys* in Ayurveda, almost similar to the sign and symptom explain under diabetic neuropathy. Thus in this article an effort has been made to understand the concept of diabetic neuropathy as already explained in *Ayurveda*.

Key words: diabetes, *upadrava*, neuropathy

INTRODUCTION

Diabetes mellitus refer to a group of common metabolic disorder that shares the phenotype of hyperglycemia. Several distinct type of diabetes exist and are caused by a complex interaction of genetics and environmental, factor contributing to hyperglycemia include reduce insulin secretion, decrease glucose utilization and increase glucose production. Diabetes mellitus is the leading cause of end stage renal disease (ESRD), Nontraumatic lower extremity amputation because of diabetic peripheral neuropathy (DPN).

The word, *Prameha* is derived from the root 'mih sechane' meaning 'watering'. In reference to disease of human beings, it many have a meaning of passing urine, qualified by prefix 'Pra' meaning excess in both frequency and quantity.

Prameha is derived from Pra+Miha. A condi-

tion characterized by excessive outflow of urine (*shabda kalpadruma*).

Madhumeha is incurable and caused by aggravation of *vata*. Naturally, *ojas* is of sweet taste. Due to the roughness, *vata* converts it into that of astringent taste and takes it into the urinary bladder; this causes *madhumeha* (Diabetes mellitus)¹. Patients pass urine, sweet and astringent taste, pale in color and unctuous.

Madhumeha roga is arising by two ways:

1. Aggravation of *vata*, due to *dhatukshya* (body constitution)
2. Obstruction to the *srotos* (channels)

Etiological factors aggravate, *kapha dosha* and *medo dhatu*, which leads to obstruct the channels and increases the *vata*, finally manifest the *Madhumeha*. On the other hand, mental stress and strain, food, drinks and activities that increases the *vata* and *dhatu kshya* causes aggravation of *vata* and leads

to *Madhumeha*. These types of patients are generally emaciated.

In Ayurveda twenty type of *prameha* is mentioned which are categorized under *vataj*, *pittaj* and *Kaphaj Prameha*. *Madhumeha* is one of the types of *vataj prameha* and this describe in the last of the list of twenty *prameha* by *charak*.

Diabetic neuropathy is manifest as polyneuropathy, mononeuropathy, and/or Autonomic neuropathy. The development of neuropathy correlates with the duration of diabetes and glyceamic control. Additional risk factor are BMI (Greater the BMI, the greater the risk of neuropathy) and smoking presence of cardiovascular disease, Elevated triglyceride and hypertension is also associated with diabetic peripheral neuropathy. Both myelinated and unmyelinated nerve fibre are last.

In *Ayurveda* diabetic peripheral neuropathy (DPN) is explained under the heading of *upadrava* (complication) of Diabetes mellitus where explains that *Angasuptata* (numbness) *Angasada* (lethargy) *Harsha* (tingling sensation) *Daha* (burning sensation) *Shosha* (wasting of muscle) etc. appear as complication of *Madhumeha* which is almost similar to the description of diabetic peripheral neuropathy.

Review of Prameha Vyadhi

Prameha is a disease which includes all those clinical condition which are characterized by increase quantity of urine associated with or without the increase frequency of urine.

In Ayurveda twenty type of *prameha* described which are again classified in to three group based upon *doshic* predominance i.e. Ten from *kapha dosha* predominance, Six from *pitta* and Four from *vatic dosha* predominance. *Madhumeha* in comes under *vatic prameha* and is elaborated in last of all the *prameha* by *charak*. At other place *acharya* explain that all the *prameha* get converted in

to *madhumeha* if they are not controlled and treated very well.

In long untreated patient of *Madhumeha* when there is increased consumption of diet which increase the *kapha dosha* and also increase blood sugar level and also due to lack of physical exercise so finally there is *dosha* and *dhatu dusti* will take place and *upadrava* i.e. complication of *madhumeha* appear which in clinically similar presentation as per by Diabetes peripheral neuropathy.

Etiology (Nidana) of Prameha

All those factors which increase the quantity of *kapha dosha* in the body are the causative factor of disease like increase consumption of fat, carbohydrate and sugar rich diet with reduce, physical activity fallow sedentary life style.

The etiology of disease *prameha* is broadly classified in the three parts-

1. Hereditary diabetes – *Sahaj Prameha – Bija dosha*
2. Familial diabetes – *Kulaj Prameha*
3. Acquired diabetes i.e. *Apathya Nimitaj* which include both *Aharaj* and *Viharaj* cause.

Upadrava of Disease Diabetes Vis a Vis Peripheral neuropathy and its path physiology

Disease *prameha* involve *dosha* are *kapha*, *Pitta* and *vata* and *dushyas* are *ambu*, *medo*, *mamsa*, *vasa*, *lasika*, *majja*, *rakta*, *shukra*, *rasa* and *ojas* which are responsible for twenty different type of *prameha*.

"*Bahu drava sleshma vikara*" i.e. extra *kleda* and *kapha* in *prameha* take place. Increase quantity of *prakupita kapha* is responsible of *Ama* because of improper production of *Anna rasa* i.e. digestive juice become of improper digestion of food due to increase *kapha dosha*.

Increase *Ama dosha* causes *shrotodusti* which leads to formation of *Aparipakwa dhatus*.

Increases *kapha* along with *pitta meda mamsa* produce obstruction i.e. *Avaran* in flow of *vata dosha* so vitiation of *vata* take place which lead to production of *Madhumeha* because, remove the *ojas* from body to outside via *mutrasaye*. Again due to vitiation of *vata dosha* and also due to production of *aparipakwa dhatu* due to *Ama dosha*, this cause elimination" of *dhatu*s via passage of *mutrasaya* that result *dhatukshaya* stage.

Both vitiated *vata* and *dhatu kshaya* stage are responsible for production of *upadrava* i.e. complication of disease *Madhumeha* which produce the symptom like *Daha*, *Anga sada* (numbness) *Shoola* (pain) *Harsha* (tingling sensation) *Mamsha shosha* (wasting of muscle) *Kampa* (tremor) etc which are almost similar symptoms as per explain under heading of Diabetic peripheral neuropathy.

Symptom of Peripheral neuropathy in Ayurveda

All the *upadrava*, i.e. complication which seen in later stage of *Madhumeha*, are almost similar to the symptoms as described under diabetic peripheral neuropathy. *Daha* (burning sensation) *Kampa* (tremor) *Shools* (Pain) *Mamshashosha* (Muscle wasting), *Angamarda* (Malaise) *Stambha* (Stiffness). All these symptoms are describe under *upadrava* of disease *madhumeha*.

DISCUSSION

There are twenty type of *prameha* in described in *Ayurveda*. *Madhumeha* is one of them which is due to predominance of *vata* and is describe in last of all which show the importance of *madhumeha* among all.

Madhumeha may be compared to diabetes mellitus because of similar etiology pathogenesis & clinical feature.

Disease *madhumeha* is considered an incurable disease because this is due to *vata*

predominance and also excusive *dhatu kshaya* take place along with *ojas kshaya* also.

Negligence of this disease and also due to inadequate treatment in the later stages *upadrava* of *madhumeha* appears which is clinically similar to disease diabetic neuropathy.

Diabetes mellitus comprises a group of metabolic disorders that share the common phenotype of hyperglycemia. Common presenting symptom of Diabetes mellitus included polyurea, polydipsia, weight loss, fatigue, weakness, blurred vision, frequent superficial infection and poor wound healing.

It has been found in various studies that over 50% of diabetic subject in India have a poor glyceamic control that lead to complication related with diabetes. These complications both macrovascular and microvascular cause significant morbidity and mortality among diabetic subjects. Diabetes neuropathy has common risc factor for all micro vascular complication such as age, duration of diabetes, glyceamic variability, HbA1C, smoking and alcohol consumption Diabetic neuropathy has subclinical and clinical manifestation depending upon class of nerve fiber involved.

Diabetic neuropathy cannot be accounted for mere presence of one sign, symptom or test alone its diagnosis requires more elaboration and generally, a minimum of two abnormalities form symptom and sign, nerve conduction abnormality, quantitative sensory test and quantitative autonomy test are recommended.

CONCLUSION

Micro vascular and macro vascular complication as chronic complication complications of diabetes, largely account for diabetes related mortality and morbidity. Diabetes especially type-II, has become the principle cause of micro vascular complication in approx 30-40% of patient.

Upadrava (Complication) in Ayurveda is almost similar Clinical presentation as per describe under diabetic neuropathy.

REFERENCES

1. Caraka Samhita, of Agnivesa, elaborated by Caraka and Dridhabala, Edited with 'Caraka-Candrika' Hindi commentary along with special deliberation by Dr. Brahmanand Tripathi, Chaukambha Surbharati Prakashan, Varanasi, 3rd Edition 1994.
2. Charaka Chikitsa sthanam; By Agnivesha; Translated into English by Dr. Ram Karan & Vaidya Bhagwan Das; Chaukamba Sanskrit Series, Varanasi & Krishnadas Academy; 2001 ;
3. Sushruta Samhita, Edited with Ayurveda Tattva-Sandipika by Kaviraja Ambika Dutta Shastri; Chaukambha Sanskrit Sansthan, Varanasi, 5th edition, 1982.
4. Astanga Hridaya, of Vagbhata, Edited with the Vidyotini Hindi commentary, by Kaviraja Atrideva Gupta, Chaukambha Sanskrit Sansthan, Varanasi, 13th Edition, 2000.
5. Madhavanidana, with the Madhukosha Sanskrit commentary by Srivijayaraksita and Srikanthadatta with Vidyotini Hindi commentary by Sri. Sudarshana Shastri, Chaukambha Sanskrit Bhawan, Varanasi, 22nd Edition, 1998.
6. Yogaratnakaram- Pramehaprakaranam, By Dr. Indeqdev Thripathi & Dr. Dayashanker Thripathi, Krishnadas Ayurveda Series 54, Chaukamba Krishnadas Academy, Varanasi – 1998; Chapter - Prameha Nidana;
7. Dyck PJ, Katz KM, Karnes JL, Litchy WJ, Klein R, Pach JM, Wilson DM, O'Brien PC, Melton LJ, Service FJ. The prevalence by staged severity of various types of Diabetic Peripheral Neuropathy, retinopathy and nephropathy in a population-based cohort: the Ayurpharm Int J Ayur Alli Sci., Vol. 3, No. 9 (2014) Pages 254 - 259 www.ayurpharm.com ISSN: 2278-4772
8. Ayurpharm - International Journal of Ayurveda and Allied Sciences 259 Rochester Diabetic Peripheral Neuropathy Study. Neurology, 1993(43):817-824.
9. Young MJ, et al. A multicenter study of the prevalence of diabetic peripheral neuropathy in the United Kingdom Hospital. Clinical Population. Diabetologia, 1993(36):1-5.
10. Harrison. Principles of Internal Medicine, Vol. 2. Eugene Braun Wald, Anthony S. Fauci, et al., editors. 15th ed. New York: McGraw-Hill; 2005.p.2122-2123.
11. Davidson's Clinical Medicine: Edited by John Macleod ; 1984, Reprint - 1985,1986; Chapter - 12- Endocrine & Metabolic Diseases; Page No -457-465; Diabetes Mellitus
12. Anonymous. Indian Herbal Pharmacopoeia; Revised new edition, Indian Drug Manufacturers association, Mumbai. 2002, pg. 129.
13. Bhavmishra. Bhavaprakash Nighantu edited by Chunekar KC and Pandey CS. 6th edition, Chaukambha Bharat Academy, Varanasi. 1982

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