



REVIEW OF HERBS IN TREATMENT OF PRAMEHA

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Abstract:

Prameha is elaborately explained in Samhitas. All Acharyas have mentioned Prameha at length and breadth. Acharya Charak has mentioned Prameha in Nidan sthan and Chikitsa sthan. Samanya and vishesh chikitsa for Prameha are explained. Some herbs are used in various dosage forms by almost all the acharyas. Triphala, Devdaru, Daruhaldi and Nagarmotha have been commonly used by acharya Charak. Prameha is Kapha pradhan vyadhi. As the rule of treatment Herbs used for the treatment should be opposite to Kapha dosha i.e Ushna veerya, Katu Vipak and Tikshna Dravya to alleviate the vitiated doshas. But use of herbs in Samhitas indicate the dravyas used are more of Katu veerya and Kashya rasa Pradhan like that of Daruhaldi and not very ushna and tikshna like that of Chitrak. Samprapti Vighatan is the main chikitsa. Shithaiya which is mainly seen in sapta dhatu dravo is to be restored. Secondly, kleda elimination needs to be done. Excess Kleda formed is excreted along with urine but just excretion doesn't help in disease. Absorption and pachan of kleda need to be done to get results in Prameha diseased patients.

Key words Triphala, Devdaru, Daruhaldi, Nagarmotha, Kapaj Prameha

Introduction:

Today noncommunicable diseases are predominantly seen. Metabolic Syndrome is very common in the middle age group and Diabetes is one of them. One in six people with diabetes is from India and is becoming a growing challenge. Rapid urbanization and unhealthy diet are becoming the major causes Modernization have brought about various wrong eating habits incurred by the west. Diabetes is a lifestyle disorder with multi-dimensional causative factors. Its increased intensity is increasing day by day. A sedentary lifestyle and wrong eating habits are the primary causes of the disorders. Obesity and overweight are important risk factors responsible for diabetes. Increased blood sugar contributes to ischemic heart disease, stroke, chronic kidney disease, tuberculosis and dementia, cataracts, nerve problems, hypertension, and blindness. As a result, various disturbances in carbohydrate and fat metabolism occur. In recent times much has been talked about diabetes respect to that much emphasis is been laid on screening, pathophysiology, and clinical manifestations, especially in diabetes cases where much work is done in reserving the diabetic initial stages. Recently, the Prediabetic stage has been defined by WHO where the high blood sugar level stage can be reserved as normal. Early detection of diabetes is the key emphasis in the management of the disease and prolonging its complications.

Prameha is commonly known as Diabetes though Prameha is vast terminology used in ayurved and one should not compare with it. Prameha is explained in detail by all Acharyas. Acharya Charak has explained the diagnosis in detail in Nidan sthan and treatment in Chikitsa sthan. Moreover, Acharya Charak has explained in Sutra sthan Madhumeha which can be seen day to day. Prameha is further classified into 20 types. Kaphaj prameha 10, Pittaj Prameha 6 and vataj Prameha 4. While describing chikitsa Kaphaj Prameha Acharya chikitsa has been described as Samanya chikitsa and the first formula mentioned was a decoction of four herbs namely Devdaru, Daruhaldi, Nagarmotha and Triphala.(1)

Triphala It is a combination of three fruits Harad, Baheda, and Amla are known as Triphala. Further Triphala has been used in Madhvasav which is used for kapha pitta Prameha.

Daruhaldi Latin name *Berberis aristata*

Daruharidra also known as Darvi is described in Charak Samhita in Arshoghna, Kandughna and Lekhaniya ganas. Sushrut Samhita and Vagbhat have mentioned Daruharidra in haridradi, Mustadi and Lakshadi ganas. Daruharidra has Tikta rasa and katu rasa with laghu and ruksha guna. It has Ushna veerya and katu vipaka. It is widely described in many nighantus. Bhavprakash Nighantu, Dhanvantari Nighantu in gudchyadi varga, Madanpal Nighantu in Abhayadi varga have mainly been described for karna gat Netra gat and mukhghat diseases. Madanadi Nighantu in chaurth gana has described its uses in Shoth, Prameha Kustha, vrana and to eliminate visham. Raj Nighantu in Pippalayadi varga in has described to use in Visarpa. Sushruta Nighantu has included in Haridradi gana and explained its use in Ama atisar and kapha and meda shodhana.

Daruhaldi plant possesses various pharmacological properties like antimicrobial, anti-inflammatory, analgesic, antipyretic, hepatoprotective, immunomodulatory, and cardiotoxic activity. The main ingredient is berberine which has potent antioxidant properties. (2)

Berberine contains isoquinoline alkaloid, a potent oral hypoglycemic agent with beneficial effects on lipid metabolism. A study conducted showed that berberine showed effects similar to metformin and showed hypoglycaemic effects and also decreased HbA1C.(3) Study indicated that the effects of Berberine on blood glucose became unremarkable as the treatment lasted more than 90 days, the daily dosage more than 2 g/d (4) Insulin resistance (IR) is defined as a series of clinical manifestations for diminished effectiveness of insulin in lowering blood sugar levels caused by decreased sensitivity to insulin of liver, muscle and adipose tissue. IR is the major contributor to the etiology and pathogenesis of type 2 diabetes mellitus (T2DM). Berberine, a traditional Chinese herb extract, has been shown to be safe and effective in lowering blood sugar, alleviating insulin resistance and moderating type 2 diabetes mellitus and its complications. (5).Berberine was studied for pain relieving activities and was found effective in neuropathy due to diabetes(6)

In a study on rats pancreatic islets it showed that Berberine promoted glucose-stimulated insulin secretion rather than basal insulin secretion in a dose-dependent manner. Berberine can enhance glucose-stimulated insulin secretion in rat islets and probably exerts the insulinotropic effect via a pathway involving hepatic nuclear factor 4 alpha (HNF4) alpha and glucokinase, which is distinct from sulphonylureas. (7) Action of Berberine is noted as Insulin sensitizing and insulinotropic.(8)

Nagarmotha Latin name *Cyperus rotundus*

Nagarmotha also commonly known as Musta. Charak Samhita has assigned to Lekhaniya, Trushnanighran, Kandughna and Sthanya shodhan. Where as Sushrut and Vagbhatt has described under Mustadi and Vachadi gana. Nagarmotha has Tikta, katu and Kashaya rasa with laghu and ruksha properties katu vipaka and sheet veerya. It is described in many nighantus. Bhav Prakash Nighantu has described tikta, Katu, Kashaya rasa and vish nashak. Madanpal Nighantu, Raj Nighantu, Dhanvantari Nighantu, Kaivyadeva Nighantu and Abhidhan manjiri all have described Nagarmotha as Deepan, pachan. Madanadi Nighantu has described its uses in Ama diseases.

Nagarmotha mainly contains polyphenols, flavonols, glycosides, alkaloids, Saponins, Sesquiterpenoids, and essential oils.(9)

An aqueous extract study of *Cyperus rotundus* with help of Gas chromatography and Mass spectrography revealed Antioxidant and Antidiabetic potential (10)

A study was done on Streptozotocin (STZ) induced diabetic mice with ethanolic extract of nagarmotha in dose levels 250-500 mg / Kg body weight for 3 weeks revealed significant antidiabetic activity, improvement in body weight, and reduction in elevated biochemical parameters such as SGPT, SGOT, cholesterol, and triglyceride levels (11)

In the study, the free radical scavenging activity, α -glucosidase inhibitory and pancreatic lipase inhibitory activities of 70% ethanol and water extracts of medicinal plants were investigated using various in vitro assays Regarding the α -glucosidase inhibition assay, *Cyperus rotundus* showed potent activity. (12)

Devdaru Latin name *Cedrus deodara*

Devdaru has been described in Sthanyashodhan gana and Anuvasanopgana while Sushrut has classified under Vata Shamshamana. Devdaru has Tikta, Katu and Kashaya ras with Ruksha and laghu guna Katu vipaka and Ushna veerya.

Devdaru contain essential oils, Sesquiterpenes P methyl acetophenone, atlantone and toxifilin.

Study was done with polyherbal extracts of Devdaru, Daruharidra, Nagarmotha and triphala. It was screened for its in vivo antioxidant antiaging effect on stress and lifespan using human homologous *Caenorhabditis elegans* model system.. The stress modulatory potential was assessed by quantification of intracellular ROS level, autofluorescent age pigment lipofuscin, oxidative and thermal stress assays. Additionally, stress response was quantified using gene reporter assays. The 0.01 μ g/ml dose of PHE was able to enhance mean lifespan by 16.09% ($P < 0.0001$) in *C. elegans*. Furthermore, PHE treated worms demonstrated oxidative

stress resistance. Additionally, PHE delayed age-related paralysis. PHE significantly improves oxidative stress and life span in *C. elegans*. Overall the present study suggests this polyherbal formulation might play important role in regulating aging and related complications like diabetes. (13)

In a study Benzosuberene-sulfone (BSS) analogues have been semi-synthesized following green approaches from himachalenes, which have been extracted from the essential oil of *Cedrus deodara*. Various studies suggested molecule developed could act as a more potent antagonist to native Peroxisome Proliferator-Activated Receptor Gamma PPAR γ and could also be developed to treat type-2 diabetes patients with R357A and V290M mutations (two PPAR γ mutants) (14)

Triphala. Fruits of three trees i.e Amla (*Emblica officinalis*), Harad (*Terminalia chebula*) and Baheda (*Terminalia bellerica*) together are known as Triphala.

A study was conducted to evaluate the effect of Triphala churna on diabetic neuropathy in diabetes induced rats. Diabetes was induced with streptozotocin (STZ, 55 mg/kg, i. p.) in rats. Animals were grouped and treated orally with Triphala churna at a dose of 250, 500, and 1,000 mg/kg after 6 weeks of diabetes induction for the next 4 weeks. At the end of study, parameters such as body weight, plasma glucose level, motor nerve conduction velocity were determined. The effect of Triphala churna on thermal hyperalgesia, mechanical hyperalgesia, and mechanical allodynia was also determined at the end of study. Treatment with Triphala churna showed a significant reduction in plasma glucose. Triphala treatment significantly increased the motor nerve conduction velocity and decreased the thermal and mechanical hyperalgesia, and mechanical allodynia. Histopathology study confirmed the neuroprotective effect of Triphala churna. The expression of NGF was significantly increased in sciatic nerves after treatment with Triphala churna. From the results, it can be concluded that Triphala churna delays the progression of neuropathy in diabetic rats. (15)

Methanolic extract (75%) of 'Triphala' in vitro was found to inhibit lipid peroxide formation and to scavenge hydroxyl and superoxide radicals. The concentration of plant extracts inhibited 50% of lipid peroxidation. Oral administration of the extracts (100 mg/kg body weight) reduced the blood sugar level in normal and in alloxan (120 mg/kg) diabetic rats significantly within 4 h. Continued, daily administration of the drug produced a sustained effect. (16)

Triphala (THL) is a traditional national medicine, it plays a good role in anti-fatigue, antioxidation, prevention and treatment of polycythemia at high altitude. Research have shown that it can reduce blood glucose in patients with diabetes and inhibit the activity of glucosidase in the intestines. The study shows that THL may enhance the activity of incretin-cAMP signal pathway and affect the proliferation and apoptosis of islet β cells, so as to achieve the effect of anti-diabetes. (17)

Discussion

Prameha has complex pathogenesis involvement of Rasa dhatu, rakta dhatu, mamsa dhatu, meda dhatu, majja dhatu, Shukra dhatu, lasika and Kleda. Herbs having ushna veerya with tikta katu and Kashaya rasa are used in the treatment of Prameha. There are 20 types of Prameha, disease begins with Kaphaj prameha if ignored converts into Pittaj and then to Vataj Prameha. The pathogenesis gets deep rooted as the disease progress. Acharya Charak in Prameha chikitsa has described few decoctions for the treatment of Kaphaj Prameha. One of the decoctions contains Triphala, Devdaru, Daruharidra and Nagarmotha.

Conclusion Triphala, Devdaru, Daruharidra and Nagarmotha all are proven antidiabetic in various studies. A combined herbal extract of all six herbs has proven antioxidant and shown antiaging effects. Berberine active of Daruharidra is looked upon as the remedy for diabetes. It has been proven anti-diabetic from various clinical studies along with in vivo and in vitro studies.

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