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CLINICAL APPROACH TO DIABETIC NEPHROPATHY AS SHOTHA - A COMPLICATION OF PRAMEHA

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ABSTRACT

Any food and drink in combination with physical activity that vitiates *Kapha, Medas* and *Mutra* causes *Prameha*. This runs a chronic course precipitating multiple complications and finally turns incurable and even proves fatal. In a clinical set up of inadequate treatment, perpetuation of sever *Prameha*, excessive morbidity of *Medas* or depletion of body elements; the vitiated *Vata Pitta* and *Kapha Dosha* tend to precipitate *Upadrava* (complications) of *Prameha*. Multiple comorbidities that associate the *Prameha* in a long run give it the convenient label of *Vyadhi Sankara* (syndrome). *Shotha* is an important complication as it may prove fatal at occasions. Edema is a presentation of end stage renal disease (ESRD) of diabetic nephropathy as per the conventional medicine. In the present day the diabetic nephropathy can be diagnosed in its earliest stage and the same is applicable to the diagnosis of *Basti Marmabhighata* and the complication of *Shotha* in *Prameha*. Among the different oral medications that are prescribed for *Shotha*, the prescription of *Shunthi* (Zingiber officinale Rosc) in combination with jiggery (Saccharum officinarum) is important as is effective both in *Shotha Roga* as well as *Prameha*.

Keywords: *Prameha*, *Nephro Abhaya*, morbidity of *Basti Marma*, diabetic nephropathy

INTRODUCTION

Illness related to the *Mutravaha Srotas* is categorized into two, based on increase or decrease in amount and frequency of urination. 20 diseases are identified where in urination is obstructed or decreased[1]. In contrast to this 20 more diseases are enlisted that present with excessive urination and are named as *Prameha*. Morbidity of all three *Vata, Pitta* and *Kapha dosha* afflicting ten *Dushya* which include *Rasa*, *Shonita, Mamsa, Medas, Majja, Shukra, Ojas, Sharira Kleda, Vasa* and *Lasika* manifests as *Prameha*[2]. Based on the involvement of *Dosha, Prameha* is further categorized into ten types of *Kaphaja Prameha*, six types of *Pittaja Prameha* and four types of *Vataja Prameha*. Progression of *Kaphaja Prameha* initially into *Pittaja Prameha* and then to *Vataja Prameha* is the usual

course[3]. This runs a chronic course and finally turns incurable and even proves fatal.

In general any food and drink in combination with physical activity that vitiates *Kapha*, *Medas* and *Mutra* causes *Prameha*[4]. Excessive intake of foods having sour or salty taste, foods that are heavy for digestion, foods that are slimy, cold, unctuous properties are said to cause *Prameha*. More to add, excessive consumptions of fatty foods, liquids, curds, sweets, drink prepared from fresh stock of grains, meat soup prepared from meat of domesticated, wet land or aquatic animals, dairy foods, sugarcane products alcoholic beverages and gluttonous eating habit may predispose to *Prameha*. The activities that may lead to *Prameha* include excessive sleep, day sleep, habituation to inactivity, mostly staying lazy, inclination to sitting in a place for a prolonged period, comfortable sitting without physical activities, habit of not partaking in walking and habit of staying for days without bathing[5]. Also the illness is known to inherit the progeny from parents[6].

The exclusive mutually supportive combinations of etiology, *Dosha* and *Dushya* rapidly progresses to the manifestation of *Prameha*. Due to the laxity of body parts the vitiated *Kapha Dosha* quickly circulates all over the body. Concomitantly, there occurs excessive accumulation non condensed form *Medas*. Since the vitiated *Kapha Dosha* and non condensed form of *Medas* have similar qualities, the *Kapha Dosha* tends to mix with *Medas*. More over as the *Kapha* is vitiated, it tend afflict *Medas*. The pathological combination of *Kapha* and *Medas* mixes with body fluid as well as *Mamsa Dhatu*. Due to excess increase of *Kleda* and *Mamsa*; the *Mamsa* gets afflicted and causes occurrence of *Sharavika* and similar other suppurative skin eruptions. The excessively accumulated body fluid is further affected by the *Kapha Dosha* and transforms it into urine. Again the opening of the *Mutravaha Srotas* originating from the *Basti* and *Vankshana* is turned heavy by the *Medas* and *Kleda*. Such changed opening of the *Mutravaha srotas* is obliterated by *Shleshma*. These pathological events eventually lead to serious lingering disease *Prameha*[7].

In a clinical set up of inadequate treatment, perpetuation of sever *Prameha*, excessive morbidity of *Medas* or depletion of body elements; the vitiated *Vata Pitta* and *Kapha Dosha* tend to precipitate *Upadrava* (complications) of *Prameha*. The possible complications are excessive thirst, diarrhea, febrile, illness, and burning sensation in the whole body, debility, lack of taste in the mouth, indigestion, suppurative skin eruptions or abscess[8]. The inadequate management at this stage, due to excessively morbid *Dosha* causes injury to the *Basti Marma* which eventually manifests as *Shotha*[9].

Injury to any *Marma* (vital organs) may be exogenous or endogenous. The external trauma leading to injury to the *Marma* (vital organs) is cited as *Bahya Marmabhighata* (exogenous vital organ injury). Contrary to this without an external trauma, if the morbid *Dosha* cause any injury to the *Marma* (vital organ); then is known as *Abhyantara Marmabhighata* (endogenous vital organ injury)[10]. Relating this to the present context, when the morbid *Dosha* involved in the pathology of *Prameha* inflicts the *Basti Marma*; then is known as *Abhyantara Basti Marmabhighata* (endogenous injury to *Basti Marma*). This endogenous injury of *Basti Marma* clinically manifests as complication *Shotha*[11].

This pathophysiology of *Prameha* causing *Shotha* is described as *Nidanarthakara Roga* (an illness causing another illness). Again the *Nidanarthakara* illness is said to be of two types. If the causative illness ceases to manifest after the development secondary illness then is referred as *Ekarthakara Vyadhi* (perpetuation of consequent illness alone). In contrast to this; if the causative illness as well as the second illness continues to exist, then is known as *Ubhayarthakara Vyadhi* (perpetuation of both causative as well as resultant disease)[12]. The *Basti Marmabhighata* leading to *Shotha* due to *Prameha* belongs to the second category, where in *Prameha* as well as *Shotha* continue to coexist.

For descriptive purposes the different terminologies are mentioned to describe this concept of one illness causing another illness. The causative illness that manifest initially is also termed as *Purvarupa Vyadhi* (predisposing illness). The second illness that devel-

ops consequent to the earlier one is termed as *Upadrava* (complication). Accordingly the *Prameha* is regarded as *Purvarupa Vyadhi* and the *Shotha* as *Upadrava*. For therapeutic purposes the different connotations are used to analyze this clinical status. The initial illness is called as *Svatantra Vyadhi* (independent illness) and the second illness is called as *Paratantra Vyadhi* (dependent illness). The so called initial *Svatantra Vyadhi* (independent illness) has more apparent symptoms in accordance with the etiology and responds to the treatment as per the prognosis. Contrary to this *Paratantra Vyadhi* is less apparent and dependent upon the initial illness for its manifestation as well as therapeutic response[13]. Accordingly *Prameha* being the *Svatantra Vyadhi* the severity of the *Shotha* depends upon the status of *Prameha*. More to add, when the second illness is severe then separate treatment is essential for the second condition. *Prameha* is a chronic illness. In the long run it may predispose to plethora of complications. Multiple co morbidities that associate the *Prameha* in a long run give it the convenient label of *Vyadhi Sankara* (syndrome). *Shotha* is an important complication as it may prove fatal at occasions. Edema is a presentation of end stage renal disease (ESRD) of diabetic nephropathy as per the conventional medicine. In the present day the diabetic nephropathy can be diagnosed in its earliest stage and the same is applicable to the diagnosis of *Basti Marmabhighata* and the complication of *Shotha* in *Prameha*.

Persistent albuminuria (>300 mg/d or >200 μg/min) Progressive decline in the glomerular filtration rate (GFR) Elevated arterial blood pressure characterizes diabetic nephropathy. This is considered as the leading cause of chronic kidney disease and is the significant illness in terms of morbidity and mortality of diabetic patients. Patients suffering from the type II diabetes mellitus for about 10-20 years are likely to suffer from this illness. Also it is estimated that the patients will pass into ESRD in about 10 years after the onset of microalbuminuria[14].

About the pathophysiology; mesangial expansion, thickening of the glomerular basement membrane and glomerular sclerosis is characteristic of diabetic nephropathy. Additionally there occurs atherosclerosis facilitated by concomitant hyperlipidemia. Unlike the many other nephropathies, the kidneys remain normal or increased in size and more particularly in the initial phase. Activation of the sympathetic nervous system and renin-angiotensin - aldosterone system adds to the risk of systemic hypertension.

Diabetic nephropathy should be suspected in patient of type II diabetes mellitus presenting with passing of foamy urine, unexplained proteinuria, hypertension, diabetic retinopathy, fatigue, foot edema secondary to hypo-albuminemia. Other co morbidities that may associate diabetic nephropathy include peripheral vascular occlusive disease, coronary artery disease, diabetic neuropathy and non healing skin ulcers and osteomyelitis. In general the diabetic nephropathy is diagnosed after a routine urinalysis and screening for microalbuminuria in the setting of diabetes. Abnormal values of Cystatin C and estimated GFR is the most sensitive tests in detecting early decline in renal functions in patient of diabetes mellitus.

Evidences suggest that early diagnosis prompt control of diabetes delays or prevent the onset of diabetic nephropathy. However in patients having the diabetes nephropathy a combination treatment of diabetes and nephropathy is the most ideal approach. In this regard it can be said that diabetes is treated by the principles of *Prameha Chikitsa* and the nephropathy is managed by the *Shotha Chikitsa*. Combination of the two treatments proves more beneficial.

With the objective of planning rational treatment, the patients of *Prameha* are classified based on the nutritional status. The patients of *Prameha* are categorized into two as overweight diabetic and emaciated diabetic. Overweight diabetic patient is treated with *Apatarpana* (reducing measures), *Shamana* (remitting management), *Tarpana chikitsa* (nutritional supplementation) as well as *Vyayama* (physical exercise). *Apatarpana* measures (reducing measures) include *Shodhana* (elimination of dosha), *Langhana* (restricted nutrition), *Vyayama* (physical exercise) and *Nidana parivarjana* (avoidance of etiological factors). Emaciated diabetic is treated with measures like *Shamana* (remitting management), *Tarpana* (nutritional sup-

plementation) as well as *Vyayama* (physical exercise)[15].

The patient of *Prameha* who is well nourished and overweight is initially treated by *Shodhana* (elimination of *Dosha*). Sequential administration of *Rukshana* (causing unctuousness), *Dipana pachana* (augmenting the digestive ability), *Snehapana* (oral administration of medicated fat), *Snigdha sveda* (unctuous sudation) helps in mobilization of *Dosha* from the whole body into the gastrointestinal tract. The *Dosha* mobilized in the trunk is then eliminated from the body; either through the upper route by therapeutic emesis; or through the lower route by way of therapeutic purgation. *Vamana* is specially indicated in *Kapha Prameha*. In contrast to this *Pittaja Prameha* is best treated by *Virechana*. Also it is said that in *Pittaja Prameha* should be treated by potent medication for *Virechana* as patients of *Prameha* are more or less resistant to purgation. It should be remembered that therapeutic enema in general and nourishing oil enema is contraindicated in *Prameha*. As the morbid *Dosha* exhibit a tendency to affect the lower half of the body, therapeutic purgation will be nearest route for elimination[16]. Thus the therapeutic elimination targeted at the elimination of accumulated *Dosha* is effective both in *Prameha* and its complication *Shotha*. This should be the approach of purification in patients diagnosed with diabetic nephropathy.

Proper nutritional supplementation is always advisable even in well nourished patient following purification of the body. food that are heavy for digestion but are less nutritious is the general principle of feeding the patients in *Prameha*. Literature has mentioned the risk of certain complications on over employment of *Shodhana Chikitsa* (elimination of *Dosha*). The complications due to excessive *Shodhana* are *Gulma* (abdominal pain), *Kshaya* (emaciation), *Mehana Shula* (penile pain), *Basti Shula* (pain in the bladder or kidney region) and *Mutragraha* (impaired urination). Therefore effective *Tarpana* (nutritional supplementation) is advisable. The food of the patients suffering from *Prameha* should contain grains pulses meat honey and vegetables and edible oils. *Shali* (rice) *Godhuma* (wheat) *Yava* (barley), *Venuyava* (bamboo seed) and *Trina Dhanya* (Millets) can be the staple food for patients suffering from *Prameha*. *Purana Shali* (old rice) and *Shashtica Shali* (rice that matures in 60 days) may be preferred among the rice varieties. Also the patient should be encouraged to use dishes of *Yava* as the predominant food. More to add, the *Yava* pretreated with decoctions that are effective in *Kaphaja Prameha* is opted for preparation of dishes. The *Yava* (barley) soaked in decoction of *Triphala* (three *myrobalans*) for overnight is used for the food preparation is just an example. Thus obtained *Yava* may be consumed in the form of *Yavaudana* (boiled barley of which the liquid portion is drained off) *Ruksha Vatya* (hulled barley gruel without addition of any edible fat) *Yavasaktu* (flour of dehusked and roasted barley), *Apupa* (roti prepared from barley) and *Dhana* (roasted barley). In the same manner one can use the rice wheat and other millets[17]. Alternatively one can use dal soup prepared from *Mudga* (green gram). This should be the dietary management of the patient suffering from *Prameha* associated with *Shotha* as complication ample use of pulses in the food is more beneficial in patients with hypoalbuminaemia due to diabetic nephropathy and resultant edema.

Following *Shodhana* (elimination of *Dosha*) the patient should be treated with *Shamana Chikitsa* (remitting measures). If the *Shodhana* (elimination of *Dosha*) is contraindicated as in physically week the treatment begins with *Shamana* (remitting measures) itself. *Shamana* includes both *Antahparimarjana* (internal medication) as well as *Bahiparimarjana* (external treatment) measures. Internal *Shamana* may be achieved by administering the medicines like *Haridra* (Curcuma longa), *Amalaki* (Emblica officinalis), *Gudamara* (Gymnema sylvestrae), *Jambu* (Syzygium cumini), *Vijayasara* (masrsupium Pterocarpus), *Methika* (foenum graecum), *Shilajatu* (asphalt), *Swarnamakshika Bhasma*, *Trivanga Bhasma* and are prescribed in the form of *Kashaya* (decoction), *Churna* (powder), *Vati* (tablet) *Leha* (confectionary), *Mantha* (mixed beverage) and light *Bhakshya* (dish). *Vyayama* (physical exercise) is the invariably advised as *Shamana Langhana*. *Bahiparimarjana Chikitsa*

(external treatment) is also advisable. Decoctions are suitable in all types of *Prameha* and particularly in *Kaphaja Prameha* and *Pittaja Prameha*. Oil or ghee processed with drugs that are curative of *Prameha* should be used in *Vataja Prameha*. Again if the *Vata Dosha* is associated with *Kapha* then medicated oil should be prescribed. When the *Pitta* is associating the *Vataja Prameha* then one should prescribe medicated ghee. If *Vataja Prameha* is associated with *Pitta* and *Kapha Dosha* then one can use the mixture of medicated oil and ghee. The addition of medications that are effective in *Shotha Roga* is mandatory when the *Basti Marma* involvement is diagnosed.

Among the different oral medications that are prescribed for *Shotha*, the prescription of *Shunthi* (Zingiber officinale Rosc) in combination with jiggery (Saccharum officinarum) is important as is effective both in *Shotha Roga* as well as *Prameha*. More to add the medicine can be administered in large dose by the *Rasayana Vidhi* for a shortest period of one month. 24 g of ginger paste is added with equal amount of jiggery is administered on the first day. Same amount is increased every day for five days to reach 120 g of ginger paste added with equal amount of jiggery. From 5th day to 35th day same dosage is maintained. This completes the course of *Rasayana*. This is said to be very effective in *Shotha* and *Prameha* and hence should be an ideal prescription in diabetic nephropathy[18].

DISCUSSION

A clinical study entitled "Effectiveness of the Nephro abhaya on glomerular filtration rate in patients of chronic diabetic nephropathy" was conducted during the period January 2016 to January 2018. Nephro abhaya is plant based formulation manufactured by SDM pharmacy consisting *Ardraka* (Zingiber officinale Rosc) and jiggery (Saccharum officinarum) as main ingredient. This study was an Interventional, Randomized, Parallel Assignment, double blind, Efficacy Study in 97 patients suffering from diabetic nephropathy attending the outpatient department of Sri Dharmasthala Manjunatheshwara Ayurveda hospital, Udupi. The objective was to investigate whether the medication with the plant based formulation Nephro abhaya is effective in improving the glomerular filtration rate in patients suffering from morbidity of *Basti Marma* / diabetic nephropathy thus improving the life expectancy of patients. 97 patients with diabetic nephropathy were randomly assigned 1:1 to oral administration of Nephro abhaya (n=50) or placebo (n=47). The randomization sequence was done by computer generated permuted block randomization with block size of 6 and is concealed using sealed sequentially numbered drug containers. Main outcome measures were Cystatin c, eGFR, and microalbuminuria, serum creatinine, blood urea and HbA1c. The study recorded the initial value of Cystatin c in Nephro abhaya group at base line was 1.331 (±SE 0.0355) and which reduced 1.160 (±SE0.0355) after the medication. The initial mean value of eGFR in Nephro abhaya group was 56.693 ml/min/1.73m^2 (±SE 2.152), that improved to 69.739 ml/min/1.73m^2 (±SE2.902) following medication thus recording an improvement to the tune of 13.383 ml/min/1.73m^2. The mean value of microalbuminuria at base line in Nephro abhaya group was 92.420 mg/dl (±SE 14.021) that came down to 53.360 mg/ dl (±SE8.494) after 96 days of medication thus recording a mean reduction of 39.06 mg/ dl. Also this change was statistically significant as analyzed by paired t test showing p = 0.019. This clinical study concluded that Nephro abhaya is effective in reducing the Cystatin c and improving the eGFR without elevating the blood sugar level. The serum creatinine and blood urea level is also improved by the medication with Nephro abhaya. The observed improvement in the renal function, point towards the requirement of continuing the same for the longer duration for improving the life of ailing kidney.

CONCLUSION

To sum up, any food and drink in combination with physical activity that vitiates *Kapha, Medas* and *Mutra* causes *Prameha*. Morbidity of three, *Vata, Pitta* and *Kapha Dosha* afflicting specific ten *Dushya* lead to *Prameha*. This runs a chronic course and finally turns incurable and even proves fatal. In a clinical

set up of inadequate treatment, perpetuation of sever *Prameha*, excessive morbidity of *Medas* or depletion of body elements; the vitiated *Vata Pitta* and *Kapha Dosha* tend to precipitate *Upadrava* (complications) of *Prameha*. The inadequate management at this stage, due to excessively morbid *Dosha* causes injury to the *Basti Marma* which eventually manifests as *Shotha*. Edema is a presentation of end stage renal disease (ESRD) of diabetic nephropathy as per the conventional medicine and is comparable to *Shotha* complication of *Prameha*. In the present day the diabetic nephropathy can be diagnosed in its earliest stage and the same is applicable to the diagnosis of *basti Marmabhighata* and the complication of *Shotha* in *Prameha*. Persistent albuminuria (>300 mg/d or >200 µg/min) Progressive decline in the glomerular filtration rate (GFR) Elevated arterial blood pressure characterizes diabetic nephropathy. Overweight diabetic patient is treated with *Apatarpana* (reducing measures), *Shamana* (remitting management), *Tarpana Chikitsa* (nutritional supplementation) as well as *Vyayama* (physical exercise). Among the different oral medications that are prescribed for *Shotha*, the prescription of *Ardraka* (Zingiber officinale Rosc) in combination with jiggery (Saccharum officinarum) is important as is effective both in *Shotha Roga* as well as *Prameha*.

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