Efficacy of Ayurvedic Drug Combination in Diabetic Nephropathy- A Single Case Study

Mugdha Aveenash*, Minal Shashikumar

Dept. of Kayachikitsa, Y.M.T Ayurvedic Medical College And Hospital Kharghar, Navi Mumbai, Maharashtra, India.

*Corresponding Author: Email: 13mugdha.vaidya@gmail.com

Abstract: Aim and Background Diabetes mellitus (DM) commonly referred as diabetes, is a group of metabolic disorder in which there is high blood sugar levels over a prolonged period of time. Type 2 diabetes mellitus begins with insulin resistance, a condition in which cells fail to respond to insulin properly. As the disease progresses a lack of insulin may also develop. Diabetic nephropathy is the leading complication of Diabetes mellitus that affects about 40% of diabetics. It needs aggressive management like dialysis and renal transplant and management of diabetes mellitus mainly concentrates on keeping blood sugar levels as close to normal. Here Ayurveda being the science of life if followed properly encourages in proper management of diabetes mellitus with proper medical procedures and medicines. Case Description A 63 years old male patient, known case of Diabetes mellitus type 2 since 1 year but not on any medication came to hospital with complaints of bilateral pedal oedema, frequent nocturnal micturition, puffiness of face, polyuria, polydipsia, burning sensation in bilateral palms and generalised weakness. His diabetic and renal profiles were deranged [serum creatinine 2.4 mg/dl, eGFR 31 ml/min, HBA1c 10.8%, BSL Fasting 214.2 mg/dl and PP 347 mg/dl, Urine Proteins (+), Urine sugar (++++)]. Patient was not taking any oral hypoglycaemic agent or insulin. According to principles of Ayurveda he was diagnosed as a case of ‘Prameha upadrava janya kapha vata Pradhan vrukka roga’. He was given Chandraprabha vati 500mg twice a day before food, freshly prepared decoction of Punarnavashtak Kashaya 50 ml twice a day after food and Vastyamayantaka ghritam. Outcome After 3 months of treatment patient showed significant relief in symptoms. Significant dropout was seen in diabetic and renal profiles [serum creatinine 1.43 mg/dl, eGFR 53 ml/min, HBA1c 6.6%, BSL Fasting 142.0 mg/dl and PP 155.5 mg/dl, Urine Proteins (Nil), Urine sugar (+), Urine bacteria (Absent)] Conclusion Significant relief can be achieved in patients of nephropathy by applying principles of Ayurveda for diagnosis and treatment.

Keywords: Diabetic nephropathy, Vrukka roga, Serum creatinine, eGFR.

Introduction

Diabetes Mellitus (DM) is one of the most leading chronic, heterogeneous and life-threatening diseases and today it has spread to every region of the globe. The prevalence of DM will be 5.4% by the year 2025, with the global diabetic population reaching to 300 million [1].

In a diabetic patient, frequent urination, increased hunger and thirst, blurred vision, itching over body and tiredness are common symptoms [2]. Nowadays, there are a lot of options available to treat type 2 diabetes with the help of various oral hypoglycaemic medications, like sulfonylureas, biguanides, DPP4 inhibitors etc.

Although these drugs have ability to reduce blood sugar level but the recommendation of one class of anti-hyperglycaemic agents or a certain combination to treat complications of diabetes is still difficult [3]. Diabetic nephropathy is a global threat to health of people in developing countries in particular as it’s therapy is expensive and lifelong.

Diabetic nephropathy refers to an irreversible deterioration in renal function over a period of time. Initially, it is manifested only as a biochemical abnormality. Later, loss of renal functions leads to the development of clinical signs and symptoms of renal failure.

When death is likely without renal replacement therapy, it is called end stage renal failure (ESRF) [4]. Diabetic nephropathy is determined by microalbuminuria that is urinary albumin excretion of more than 300 mg in 24-hour or microalbuminuria and abnormal renal function as represented by an increase in
serum creatinine level and declining calculated glomerular filtration rate (GFR).

Though complications of Prameha are well written in all classical texts, there is no such elaboration of pathology mentioned. Considering nephropathy, Vrukka roga mentioned in ‘Bhaishajyaratnava li’ matches well with signs and symptoms of diabetic nephropathy. Ayurveda, a science of living has ability to treat diabetes and it’s complications in various ways like diet planning, exercise and yoga practice. Moreover, various ayurvedic herbs and their formulations are effective in the treatment of diabetes and it’s complications without showing any side effect [5].

Aims and Objectives
To estimate the efficacy of Ayurvedic Drug Combination in Diabetic Nephropathy.

Materials and Methods
Type of Study
A single observational case study.

Study Centre
Y.M.T Ayurvedic Medical College and Hospital Kharghar, Navi Mumbai.

Case Description
A male patient of age 63 years presented in outpatient department of YMT Aurvedic Medical College And Hospital Kharghar in May 2019 with complaints of bilateral pedal oedema, frequent nocturnal micturition, puffiness of face, polyuria, polydipsia, burning sensation in bilateral palms and generalised weakness from 3-4 months. He was a known case of Diabetes mellitus type 2 since 1 year but was not taking any medication for the same. Patient was not having glycaemic control. Blood investigations showed serum creatinine 2.4 mg/dl, eGFR 31 ml/min, HBA1c 10.8%, BSL Fasting 214.2 mg/dl and PP 347 mg/dl and urine analysis was Urine Proteins (+), Urine sugar (+++).

On Examination
- General condition: Fair
- Temp: Afebrile
- Pulse: 86/min
- Blood pressure: 120/70 mm of Hg
- Respiratory rate: 19/min
- Bowel: Satisfactory
- Bladder: Frequency of Nocturnal micturition, Polyuria
- P/A: Soft, Non-Tender, Liver Spleen- Non-palpable
- Systemic Examination: RS: AEBE, Clear

CVS: S1 S2 Normal
CNS: Conscious, Oriented

Table 1: Ashtavidha Parikshan

<table>
<thead>
<tr>
<th>Nadi</th>
<th>Vata Kaphaj</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mutra</td>
<td>Naktamutrata, Bahumutrata</td>
</tr>
<tr>
<td>Mala</td>
<td>Samyak pravrutti</td>
</tr>
<tr>
<td>Jivha</td>
<td>Sama</td>
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<td>Shabda</td>
<td>Spashta</td>
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<td>Sparsha</td>
<td>Anushna</td>
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<tr>
<td>Druk</td>
<td>Prakrut</td>
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<tr>
<td>Aakruti</td>
<td>Madhyam</td>
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</tbody>
</table>

Diagnosis
According to Modern science, it was a case of Diabetic nephropathy. According to Ayurveda the patient showed symptoms of Prameha Upadrava like polydipsia (pipasa), generalised weakness (daurbalya) [6], burning sensation in bilateral palms (daha). Specific diagnosis made was Prameha upadrava janya kapha vata Pradhan vrukka roga.

Treatment Given
The Patient was given a Combination of
- Chandraprabha Vati [7] (Sharangdhar Samhita Madhyam Khand 7/40-49) 500mg twice a day before food with Luke warm water for 3 months
- Freshly prepared decoction of Punarnavashtak Kashaya[8] (Chakradatta-Shotha Chikitsa) 50 ml twice a day after food for 3 months
- Vastyamayantaka ghritam [9] (Sahasrayoga - Shashtham Prakarana-Ghritayoga 29) 20ml twice a day before food with Luke warm water for 3 months
This treatment was given for 3 months continuously. Patient didn’t take any medication other than Ayurvedic mediation for Diabetic nephropathy.

**Treatment Outcome**

After 15 days of treatment the symptoms which were reduced were bilateral pedal oedema, puffiness of face and poluria. After 2 months of treatment marked reduction was observed in serum creatinine level (1.5 mg/dl) that is it was within normal limit and marked increase in eGFR (50 ml/min) was seen. Also significant result was seen in symptoms like frequent nocturnal micturition and generalised weakness.

This treatment was continued for one more month and then he got significant relief in all symptoms including burning sensation in bilateral palms. At this stage his serum creatinine was (1.43 mg/dl) that is within normal limit, eGFR was (53 ml/min), HBA1c (6.6%), Urinary proteins (Nil), Urinary sugar (++). Patient had good glycaemic control and improved renal function with this line of treatment for 3 months.

**Table 2: Treatment Outcome**

<table>
<thead>
<tr>
<th>Date of Follow ups</th>
<th>Signs And Symptoms</th>
<th>Investigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>22/05/2019</td>
<td>Bilateral pedal oedema (Ubhaya pada shotha), Frequent nocturnal micturition (Naktmutrata), Puffiness of face (Mukh shotha), Polyuria (Bahumutrata), Polydipsia (Pipasa), Burning sensation in bilateral palms (Ubhaya hasta tala daha) and Generalised weakness (Daurbalya)</td>
<td>Serum creatinine 2.4 mg/dl, eGFR 31 ml/min, HBA1c 10.8%, BSL (Fasting) 214.2 mg/dl and (PP) 347 mg/dl, Urine Proteins (+), Urine sugar (++++)</td>
</tr>
<tr>
<td>After 15 days follow up 07/06/2019</td>
<td>Reduction in symptoms like Bilateral pedal oedema (Ubhaya pada shotha), Puffiness of face (Mukh shotha) and Polyuria (Bahumutrata)</td>
<td>Serum creatinine 2.04 mg/dl, eGFR 32.5 ml/min, Urine Proteins (+), Urine sugar (+)</td>
</tr>
<tr>
<td>After 2 months follow up 04/07/2019</td>
<td>Significant reduction in symptoms like Frequent nocturnal micturition (Naktmutrata) and Generalised weakness (Daurbalya)</td>
<td>Serum creatinine 1.5 mg/dl, eGFR 50 ml/min, Urine Protein (Trace), Urine sugar (Trace)</td>
</tr>
<tr>
<td>After 3 months follow up 12/08/2019</td>
<td>Significant relief in all symptoms including Burning sensation in bilateral palms (Ubhaya hasta tala daha)</td>
<td>Serum creatinine 1.43 mg/dl eGFR was 53 ml/min, HBA1c (6.6%) Urine proteins (Nil), Urine sugar (++).</td>
</tr>
</tbody>
</table>

**Table 3: Before treatment**

![Image of medical report]
Table 4: After treatment

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<thead>
<tr>
<th>Table 4: After treatment</th>
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<th>Table 4: After treatment</th>
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<tr>
<td><strong>MUGDA LABS</strong></td>
<td><strong>OMKAR LABS</strong></td>
<td><strong>SUBURBAN DIAGNOSTICS</strong></td>
</tr>
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<td><strong>LABORATORY</strong></td>
<td><strong>LABORATORY</strong></td>
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<td><strong>TECHNICAL ANALYSIS</strong></td>
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<td><strong>REPORT SHEET</strong></td>
<td><strong>REPORT SHEET</strong></td>
<td><strong>REPORT SHEET</strong></td>
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<tr>
<td><strong>PATIENTS NAME:</strong> MR. GANSHAM MADHU SHRAVAN</td>
<td><strong>REFFERRED BY:</strong> MINAL VAIDYA</td>
<td><strong>LAB NO:</strong> AD2839</td>
</tr>
<tr>
<td><strong>AGE / GENDER:</strong> 63 YEAR FEMALE</td>
<td><strong>M/F:</strong> FEMALE</td>
<td><strong>DATE:</strong> 22-08-2019</td>
</tr>
<tr>
<td><strong>REFERRER:</strong> MINAL VAIDYA</td>
<td><strong>LAB NO:</strong> AD2839</td>
<td><strong>REMARKS:</strong> Hb</td>
</tr>
<tr>
<td><strong>GLYOXYLATED HEMOGLOBIN</strong></td>
<td><strong>REMARKS:</strong> Hb</td>
<td><strong>REMARKS:</strong> Hb</td>
</tr>
<tr>
<td><strong>TEST VALUE</strong></td>
<td><strong>RESULT</strong></td>
<td><strong>RESULTS</strong></td>
</tr>
<tr>
<td>Glycoxylated Hemoglobin - Hb</td>
<td>6.6%</td>
<td>5.8%</td>
</tr>
<tr>
<td><strong>NORMAL RANGE</strong></td>
<td><strong>BIOLOGICAL REFERENCE</strong></td>
<td><strong>METHOD</strong></td>
</tr>
<tr>
<td>(5-15)</td>
<td>0.67-1.17 mg/dL</td>
<td>Diasthetic</td>
</tr>
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<td><strong>INTERPRETATION</strong></td>
<td><strong>INTERPRETATION</strong></td>
<td><strong>INTERPRETATION</strong></td>
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<td><strong>Normal</strong></td>
<td><strong>Normal</strong></td>
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<tr>
<td><strong>RESULT</strong></td>
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<td><strong>REMARKS:</strong></td>
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<td><strong>Abnormal</strong></td>
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Discussion

Diabetic Nephropathy is characterized by excessive urinary albumin excretion followed by loss of kidney function. It is a result of reduced glomerular filtration rate (GFR). It has been classified in five stages [10]. Proteinuria is hallmark of Diabetic Nephropathy. It begins as transient microalbuminuria with preserved GFR in early stage I.

As GFR reduces to 50%, there is persistent proteinuria, raised serum creatinine, hypertension and oedema (stage IV), which reaches to end stage renal disease (stage V) as GFR reduces. Though complications of Prameha are well written in all classical treatises there is no clear mention of pathology that can clarify dosha dushya sammurchana involved in them.

Considering nephropathy, Vrukka Roga mentioned in ‘Bhaishajyaratnavali’ matches very well with sign and symptoms of diabetic nephropathy. So, pathology of Diabetic nephropathy from Ayurveda’s point of view can be considered according to Vrukka Roga mentioned in Bhaishajyaratnavali[11]. If symptoms of upadrava of Prameha and vrukka roga are considered the patient can be diagnosed as case of ‘Prameha upadrava janya kapha vata Pradhavan vrukka roga’. Acharyas have advised to use combination of herbal medicines which have functions such as mutral, deepen, pachan, raktaprasadak, virechak and rasayana [12]. Hence the principle used for chikitsa was Vata-kaphaghna chikitsa, Srotovishodhan and Mutra-virechaniya. The Probable mode of action of this chikitsa can be explained as:

Chandraprabha Vati

Composition

Chandraprabha, Vacha, Musta, Bhunimba, Amruta, Haridra, Ativisha, Daruharidra, Pippalimula, Chitraka, Dhanyaka, Triphala, Chavya, Vidanga, Gajapippali, Vyosha, Suvarna makshika Trivrut, Danti, Patrak, Tvak, Ela, Vanshlochana, Loha bhasma, Sita, Shilajatu, etc.
It reduces dhatushaithilya (laxity), kleda, well known for its action on mutrendriya (basti) [13] Hence, it acts as rasayana for mutravaha srotasa. It reduces kleda by it’s Shoshana. It is said to be useful in treating 20 types of Prameha, Mutrakrichra, Mutraghata and Mutrashmaries.

Punarnavashtak Kashaya

Composition

Punarnava, Nimba, Patola, Shunthi, Kutaki, Guduchi, Devdaru, Haritaki It contains Punarnava (Boerhavia diffusa) which is an excellent medicine in this condition due to its tridosh ar, kaphapittashamak, Shothahara, mutrajanan properties[14]. All other drugs are also Kleda panchaka, Srotovishodhaka. This Kashaya is mentioned in Shotha chikitsa of Chakradatta.

Vastyamayantaka Ghritam

Composition

Gokshura, Shatavari, Amlaki, Bimbi, Kushmanda, Narikel jala, Daruhradra, Madhuka, Brihati, Nidigdhika, Prishniparni, Shaliparni, Sariva, Ikshu, Shigru, Vasuka, Varuna, Draksha, Utpala, Triphala, Punarnava, Ashwagandha, Lodhra, Shilajiteet, etc. It contains Varun (Crataeva nurvala) which also pacifies kapha and vata and especially reduces pain in basti. It is well known as mutramargshankramana [15]. It also contains Aamlaki (Emblica officinalis) is well known for its pramehaghna, rasayana and pittashamak effect [16]. Drugs like Gokshura, Ikshu, and Varuna etc are Mutra Janaka and Mutra virechaniya. Drugs like Sariva, Triphala are Rakta prasadaka.

Conclusion

As the number of diabetic patients is increasing worldwide, and due to change in lifestyle number of patients suffering from Diabetic nephropathy are also increasing day by day. As the process of Renal cell damage is very rapidly progressive and we do not have specific treatment modalities for it’s repair in Modern science; there is need of specific and improvised treatment plan to treat these complications like Diabetic nephropathy.

This is a single case study and more such studies on this disease will lead to deciding Ayurvedic treatment protocol in this condition. Significant result can be achieved in patients of Diabetic nephropathy by using Principles of Ayurveda for diagnosis and treatment of Prameha and Vrukka roga.

References

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