



Efficacy of Treatment in Ayurveda for the Management of Diabetic Nephropathy: A Case Study

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2021/v33i38B32094

Editor(s):

(1) Dr. Asmaa Fathi Moustafa Hamouda, Jazan University, Saudi Arabia.

Reviewers:

(1) Marco Cascella, Istituto Nazionale Tumori IRCCS Fondazione G. Pascale, Italy.

(2) KGK Deepak, GITAM University, India.

Complete Peer review History: <https://www.sdiarticle4.com/review-history/71125>

Case Study

Received 10 May 2021

Accepted 16 July 2021

Published 26 July 2021

ABSTRACT

Diabetic Nephropathy is one of the serious clinical condition that originated as a complication of the Diabetes Mellitus. It is the main culprit for end-stage renal diseases, which ultimately may lead to life-threatening conditions. A 58 years old male patient was having diabetes mellitus and hypertension for 15 years came to Mahatma Gandhi Ayurved College, Hospital and research centre, Wardha, Maharashtra (India) having bilateral pedal edema, vomiting, nausea, general weakness, frequent nocturnal micturition, hiccough from last two months. He was treated with Gokshuradi Guggulu, Chandraprabha Vati, Bhumyamalaki Churna, a freshly prepared decoction of Trunpanchmula [combination of Kush (*Desmostachya bipinnata*), Kash (*Saccharum pontaneum*), Darbha (*Saccharum munja*), Nal (*Saccharum officinarum*) and kandeshu] 50 ml daily twice a day

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after food. All other allopathic treatments for hypertension and Diabetes were continued as before, but the patient took only Ayurveda's treatment for Nephropathy. After continuous treatment for two months, Blood Urea level was remarkably decreased from 51 mg/dl to 45 mg/dl & Serum Creatinine also reduced from 3.0 mg/dl to 1.5 mg/dl with a gross decrease in proteinuria. Both Blood sugar fasting & post- prandial were also reduced from 246mg/dl & 346 mg/dl to 190mg/dl & 225mg/dl respectively. The present Case report is discussed here to show the efficacy of Ayurveda in diabetic Nephropathy.

Keywords: *Ayurveda; diabetic nephropathy; chronic kidney diseases.*

1. INTRODUCTION

Diabetic Nephropathy is the common entity in diabetes mellitus [DM] which occurred as a result of chronic loss of kidney function. It is the main etiological factors of the chronic kidney disease (CKD) and end-stage renal disease (ESRD) [1]. The current faulty and stressful lifestyle is provoking the higher incidence rate of diabetes mellitus in early adulthood. As a result of that & poor glycemic control, such patients are more prone to develop multiple complications of DM such as cardiac disorders, cerebro-vascular strokes, diabetic retinopathy, gangrene etc. Among them, diabetic nephropathy [DN] is one the commonest entity. The clinical features of this nephropathy are also observed as complications of *Prameha Vyadhi* which mimics with the Diabetes mellitus in the modern science. As per Ayurveda's classics, *Upadravas* of *Prameha* is bilateral pedal edema, vomiting, nausea, general weakness, and frequent nocturnal micturition, hiccough, etc. Though complications of *Prameha* are well mentioned in *Ayurveda's* texts, there is no clear description of pathology that can explain *Dosha Dushya Sammurchchhana* (Involvement of bio-humors and associated tissue) involved in them. But the signs and symptoms of DN match very well with the *Vrukka Roga* (kidney disease), as mentioned in *Bhaishajyaratnavali* [2].

2. CASE –PRESENTATION

A male patient of 58 years already diagnosed with DM and hypertension since 15 years came to the outpatient department of Mahatma Gandhi Ayurved College, Wardha, Maharashtra in August 2018 with complaints of bilateral pedal edema, vomiting, nausea, general weakness, frequent nocturnal micturition, hiccough (Refer Table no.1) since last two months. He took a combination of Gliclazide 80 milligram (mg) and metformin 500 mg twice daily, injection huminsuline 30/ 70 in the dose of 25 units before

lunch, and 25 units before dinner subcutaneously, and metoprolol 25 mg once per day.

3. EXAMINATION

Pulse rate- 98/min
Blood Pressure- 170/100 mm of Hg
CVS, RS, and Abdomen- Normal.
Vitals- Appetite: good; Bowels: clear and regular;
Urine: normal; Sleep: sound.
Habits- Cigarette smoking (about 10 per day) and alcohol consumption (about 500ml per day).
Diet- Mixed & irregular interval

4. INVESTIGATIONS

At the time of the baseline visit (29/08/18), pathological findings were as follows:

In Biochemical tests, values of Serum creatinine, blood urea, BSL (Fasting) & BSL (postprandial) are 3.0 mg/dl, 51 mg/dl, 246 mg/dl and 346 mg/dl respectively (Date: –refer table no.3). Urine examination showed moderate protein and sugar loss.

5. DIAGNOSIS

In view of modern sciences, the final diagnosis of the patient was DN. According to Ayurveda, the patient clearly showed the symptoms of *Prameha Upadrava*, such as having *Ubhayapaada Shotha* (bilateral pedal edema), *Chhardi* (vomiting), *Hrullas* (nausea), *Daurbalya* (general weakness), *Naktamutrata* (frequent nocturnal micturition), *Hikka* (hiccough), etc. *Vrukka Roga* mentioned in *Bhaishajyaratnavali* also matches very well with the signs and symptoms of DN. So precise diagnosis established was as *Prameha Upadravajanya Vrukka Roga* (Kidney disease induced as a complication of DM).

Table 1. Chief complaints

| S.N. | Nature of symptoms | Gradations | Observed Grade |
|------|--|--|----------------|
| 1 | <i>Ubhaypada Shotha</i> (Bilateral pedal edema) | No edema-0 Slight pitting 2mm, disappears, rapidly-1 Deep pitting 4mm, disappears in 10-15secs-2 Deeper pitting 6mm, may last > 1 min.-3 | 3+ |
| 2 | <i>Chhardi</i> (Vomiting) | Complete absence of nausea -0 Regular Frequency of salivation i.e. on every day-1 Feeling of nausea and vomiting occasionally-2 Frequency of vomiting 2-3 times or more/weeks -3 Daily frequency of vomiting-4 Regular frequency of vomiting just after every meal or even without meal-5 | 4+ |
| 3 | <i>Hrullas</i> (Nausea) | No nausea i.e. another sip of food would be nice-0 Feeling of not eating more, yet the person can able to take ghee without force and without nausea-1 Nausea by tasting, person can able to take ghee on forcing but with feeling of nausea Nausea, vomiting on thought and sight of food and tasting, person cant able to take at all-4 | 3+ |
| 4 | <i>Daurbalya</i> (General weakness) | No weakness-1 Occasional feeling of tiredness on light activity-1 Constant feeling of tiredness on heavy activity-2 Feeling tiredness all the time-3 | 3+ |
| 5 | <i>Naktamutrata</i> (Nocturia) | No urination times at Night -0 One –two times/Night -1 Three –four times/Night -2 Five –six times/Night -3 | 3+ |
| 6 | <i>Hikka</i> (Hiccough) | No Hiccough at all-0 Frequency of Hiccough occasionally -1 Frequency of Hiccough on every day but not inducing disturbance to person -2 Frequency of Hiccough but creating little disturbance to patient -3 Frequency of Hiccough but creating much disturbance to patient -4 | 2+ |

Table 2. Treatment given

| S.N. | Drugs | Dose | Time of administration | Anupana | Duration |
|------|--|-----------------|------------------------|----------------|------------|
| 1. | <i>Gokshuradi Guggulu</i> | 250mg 2 tabs BD | After food | Lukewarm water | Two months |
| 2. | <i>Chandraprabha Vati</i> | 250mg 3 tabs BD | After food | Milk | Two months |
| 3. | <i>Bhumyamalaki Churna</i> | 3 gm BD | After food | Lukewarm water | Two month |
| 4. | The freshly prepared decoction of <i>Trunpanchmula</i> | 50 ml BD | After food | Lukewarm water | Two month |

Table 3. Assessment of the patient with the Time Line

| S.N. | Assessment criteria | Before Rx (Baseline-29/08/2018) | First Follow up(After one month-28/09/2018) | Second, follow up (After 2months-28/11/2018) | |
|---|---|---------------------------------|---|--|----------------------|
| A | | | | | |
| Nature of symptoms (Subjective) | | | | | |
| 1 | <i>Ubhaypada Shotha</i> (bilateral pedal edema) | 3+ | 2+ | Absent | |
| 2 | <i>Chhardi</i> (vomiting) | 4+ | 1+ | Absent | |
| 3 | <i>Hrullas</i> (nausea) | 3+ | Absent | Absent | |
| 4 | <i>Daurbalya</i> (general weakness) | 3+ | 1+ | Absent | |
| 5 | <i>Naktamutrata</i> (Nocturia) | 2+ | 1+ | Absent | |
| 6 | <i>Hikka</i> (hicough) | 2+ | Absent | Absent | |
| B | | | | | |
| Biochemical parameter (Objective parameters) | | | | | |
| S.N. | Parameter | Normal range | Before Rx | After 1 month | After 2 months |
| 1 | BSL (Fasting) | 70-110mg/dl | 246mg/dl | 200mg/dl | 190mg/dl |
| 2 | BSL (post- prandial) | Upto150mg/dl | 346 mg/dl | 235mg/dl | 225mg/dl |
| 3 | Blood urea level | 7-25 mg/dl | 51 mg/dl | 50mg/dl | – 45mg/dl |
| 4 | Serum creatinine | 0.6-1.1 mg/dl | 3.0 mg/dl | 1.8 mg/dl | 1.5 mg/dl |
| 5 | Urine routine and microscopic | - | protein ++ Sugar ++ | protein + Sugar + | protein + sugar + |

6. TREATMENT

The patient was treated with palliative treatment in Ayurveda that is mentioned in table no.2. All other allopathic treatments for hypertension and Diabetes were continued as before, but the patient did not take any medicine other than palliative treatment in Ayurveda for Nephropathy.

7. RESULT & OBSERVATIONS

During two months of the treatment period, the patient got a remarkable improvement in the renal function tests and signs and symptoms of DN, as shown in Table no. 3. The severity of the Subjective parameters such as *Ubhaypada Shotha* (bilateral pedal edema), *Chhardi* (vomiting), *Hrullas* (nausea), *Daurbalya* (general weakness), *Naktamutrata* (Nocturia) & *Hikka* (hicough) were significantly reduced from 3+,4+,3+,3+,2+,2+ respectively after first follow up and resolved completely after second follow up i.e. after 2 months. Moreover, blood urea level was remarkably decreased from 51 mg/dl to 45 mg/dl and serum creatinine also reduced from 3.0 mg/dl to 1.5 mg/dl with a gross decrease in proteinuria after two months. Both blood sugar

fasting & post- prandial were also reduced from 246mg/dl & 346 mg/dl to 190mg/dl & 225mg/dl respectively. Besides, the treatment also improved the general condition of the patient.

8. DISCUSSION

DN is the clinical condition characterized by progressive deterioration of kidney function preceded by excessive urinary albumin excretion, resulting from reduced glomerular filtration rate (GFR). According to *Ayurveda*, nephropathy can be considered *Prameha Upadravajanya Vrukka Roga* kidney disease induced as a complication of DM, and in such conditions, it is advised to use *Mutual* (diuretics), *Deepan-Pachan* (appetizers), *Raktaprasada* (blood purifier), *Virechak* (laxative), and *Rasayana* (adaptogenic) medicines [3]. Though it is *Tridoshaja Vyadhi*, the involvement of all the three *Doshas* (*Bio-humors*) with the involvement of all the *Dushyas* in it, vitiated *Kapha Dosh* is the prime pathological factor that is responsible for blocking micro-vessels and developing micro-angiopathy. Vitiated *Vata Dosh* induces the degeneration of the various minute structures of the kidney i.e. nephrons. The basic treatment principles of Ayurveda recommend the use of

Rasayana drugs to repair damaged tissue and to prevent further damage by improving the quality of tissues and hence increasing their resistance power.

On the other hand, drugs with *Lekhana* (scrapping) properties removes blockages in the tissues in the channels by their scraping effect. *Gokshuradi Guggulu* is an established medicine in the disorders of *Mutravaha Srotas* (urinary system). *Prameha* (DM), *Mutrakriccha* (dysuria), and *Mutraghata* (kidney failure) are some of its specific indications. Moreover, it is also indicated in most of the other diseases of *Mutra* and *Shukravaha Srotasa* (disorders of urinary & reproductive systems) [4]. In this formulation, *Gokshura*, (*Tribulus terrestris*) is the main ingredient that induces *Rasayana* effect over *Mutravaha Srotas*, while another main ingredient of this formulation i.e. *Guggulu* (*Commiphora mukul*) have also *Rasayana* [5–7] property and *Lekhana* (scrapping) properties also. Due to *Tridoshahara* property, all the three *Doshas* are pacified by the *Guggulu*.

Chandraprabha Vati reduces *Kapha*, *Pitta*, *Dhatushaithilya* (laxity), *Kleda*, and is well known for its action on *Mutrendriya* or *Basti* (urinary bladder) [8]. It also acts as *Rasayana* for *Mutravaha Srotasa*. *Bhumyamalaki Churna* is a *Rasayana* [9] and has been described as *Mutraroganashini* in *Rajnighantu*. *Trunpanchmul* is a combination of *Kush* (*Desmostachya bipinnata*), *Kash* (*Saccharum spontaneum*), *Darbha* (*Saccharum munja*), *Nal* (*Saccharum officinarum*), and *Kandeshu*, which is *Tridoshghna*, *Mutral* and works on *Vrukka Roga* [10,11]. It is also indicated in *Apana Vayu Dushti Vikara*. Therefore, it is also useful in DN where the normal function of the *Apana Vayu* is hampered. Many studies on nephropathy related to different conditions were reported in modern medicine [12-14]. Studies on treatment of diabetes by Ayurveda were reported by Ambad et. al. [15,16], Deshpande et. al. [17] and Shinde et. al. [18]. Few key studies on diabetes were reviewed [19-25].

9. CONCLUSION

As the number of diabetics is increasing worldwide, the number of patients suffering from nephropathy is also rising. It is an observation of a single case, and more studies are needed to establish treatment protocol in an *Ayurveda* in this condition. Significant relief can be achieved

in patients of DN by applying principles of *Ayurveda* in general, and the diagnosis and treatment of *Prameha* and *Vrukka Roga* in particular. It is a single case study that can lay down the road ahead for further research in the future.

DISCLAIMER

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

ETHICAL APPROVAL & CONSENT

As per international standard or university standard guideline patients consent and ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:

The peer review history for this paper can be accessed here:
<https://www.sdiarticle4.com/review-history/71125>