Effect of ayurvedic treatment in diabetic nephropathy: a case study

Minal S. Vaidya¹, Swapil S. Parab*, Sanyogita S. Shinde³

1. HOD, professor & PG guide, email: drminalsvaidya@gmail.com
2. Final yr. PG Scholar
3. Final yr. PG Scholar

Kaychikitsa Department, Y.M.T Ayurvedic Hospital & College, Kharghar, Navi-Mumbai, Maharashtra- 410210

Abstract:

AIM & BACKGROUND: Diabetic nephropathy (DN), also known as diabetic kidney disease, is the chronic loss of kidney function occurring in those with diabetes mellitus. Protein loss in the urine due to damage to the glomeruli may become massive, and cause a low serum albumin with resulting generalized body swelling and result in the nephrotic syndrome. Likewise, the estimated glomerular filtration rate (eGFR) may progressively fall from a normal of over 90 ml/min/1.73m² to less than 15, at which point the patient is said to have end-stage kidney (ESKD). It is usually slowly progressive over years.

CASE DESCRIPTION: A 70 year old female k/c/o DM for 10 years presenting with anasarca, puffiness of face, nausea, vomiting, weakness, hiccup, oliguria and itching all over body. Her renal and diabetic profile were deranged with huge proteinuria. Patient was on OHA (oral hypoglycaemic agent). According to ayurved she was diagnosed as case of prameha upadrav janya kapha pradhan vrikka rog.

OUTCOME: After 11 days of vajeri basti and oral medication the patient showed significant relief in symptoms as well as reports.

CONCLUSION: Significant relief can be achieved in patients of diabetic nephropathy by applying classical ayurvedic principles. It’s a single case study and can lead down road for further research.
INTRODUCTION:
Diabetic nephropathy (DN), also known as diabetic kidney disease, is the chronic loss of kidney function occurring in those with diabetes mellitus. Protein loss in the urine due to damage to the glomeruli may become massive, and cause a low serum albumin with resulting generalized body swelling and result in the nephrotic syndrome. Likewise, the estimated glomerular filtration rate (eGFR) may progressively fall from a normal of over 90 ml/min/1.73m² to less than 15, at which point the patient is said to have end-stage kidney (ESKD). It usually is slowly progressive over years. Affected individuals with end-stage kidney disease often require haemodialysis and eventually kidney transplantation to replace the failed kidney function. Diabetic nephropathy is associated with an increased risk of death in general, particularly from cardiovascular disease. The incidences of CKD in INDIA, which is densely populated country with low income, different food, cultural tradition and lifestyle habit, is 7.85 million of its population and the prevalence rate is 0.78% 1. Over 1 million people worldwide are alive on dialysis or with a functioning graft. Clinically diabetic nephropathy is characterised by progressive increase in proteinuria and decline in GFR. As per ayurvedic classics upadravas of prameha are nausea, vomiting, oedema, indigestion, hiccups, etc. these symptoms are seen as upadrava due to kapha and pitta. Though complications of prameha are well written in samhitas there is no clear mention of pathology that can clarify dosha-dushya samurchina involved in them. Considering nephropathy vriikka rog mentioned in Bhaishhya Ratnavali matches very well with signs and symptoms of diabetic nephropathy.

CASE DESCRIPTION:
A female patient of 70 years presented in out patient department of Y.M.T. Trust’s Ayurvedic Hospital, on 12th November 2018, with complaints of anasarca, puffiness of face, nausea, vomiting, weakness, hiccups, oliguria and itching all over body from 2 months. she was known case of T2DM, she was on combination of gliclazide 80 mg and metformin 500 mg twice a day before meal. Despite above medications patient did not have good glycaemic control. Blood investigations showed sr. creatinine - 1.83 mg/dl, e-GFR - 40 ml/min, blood urea – 38, sr. sodium – 135 mEq/L, potassium – 4mEq/L, chlorides – 99 mEq/L, HbA1C – 9.1%, urine protein – present (+++).

DIAGNOSIS:
In view of modern sciences, it was a clearly case of Diabetic Nephropathy. According to Ayurveda the patient clearly shows symptoms of prameha upadrava such as vomiting (chardi), nausea(hrillas). But precise diagnosis established was Prameha upadrav kapha Pradhan vriikka rog.

TREATMENT GIVEN:
Patient received orally - chandraprabha vati – 500 mg twice a day before food, punarnavashtak kwath – 40ml twice a day and panchakarma – vajeri basti - 120ml for 11 days.

All other allopathic treatment for diabetes were continued as before but patient did not take any treatment other than ayurvedic for nephropathy.
TREATMENT OUTCOME:

After starting basti treatment along with oral medication her symptoms like vomiting and nausea started to reduce over course of time. After 5 days of basti her anasarca begins to reduce and there was increase in appetite and urine output. On 7th day her weakness was reduced and there was more increase in appetite. On 11th day renal profile, urine routine and microscopic, eGFR were repeated and found that Sr. creatinine – 0.81 mEq/l, Blood urea – 21.7 mEq/L, Sr. sodium – 137 mEq/L, potassium –4 mEq/L, chlorides – 92 mEq/L, eGFR- 69

DISCUSSION:

Diabetic nephropathy is an important cause of morbidity and mortality in both type-1 and type-2 diabetes. It is now the most common cause of End-stage-renal failure in developed countries and account for between 20% and 50% of patients starting renal replacement therapy.

Risk factors:

- Poor glycemic control
- Long duration of diabetes
- Presence of other microvascular complications
- Ethnicity (Asian, pima Indians)
- Pre-existing hypertension
- Family history of diabetic nephropathy
- Family history of hypertension

About 30% of patients of type-1 diabetes have developed diabetic nephropathy 20 years after diagnosis. The pathophysiology is not fully understood and there are several postulated mechanisms by which hyperglycaemia causes the pathological changes seen in diabetic nephropathy. The central features are activation of the renin-angiotensin system, leading to both intrarenal and systemic effects, as well as direct toxic effects of prolonged hyperglycaemia leading to renal inflammation and fibrosis. The first changes coincide with the onset of microalbuminuria and include thickening of the glomerular basement membrane and accumulation of matrix material in the mesangium. Subsequently nodular deposits are characteristic and glomerulosclerosis worsens, as heavy proteinuria develops until glomeruli are progressively lost and renal function deteriorates.

To facilitate the assessment of CKD severity, the National Kidney Foundation developed criteria as apart of its Kidney Disease Outcome Quality Initiative, 2

- Stage 1: Normal eGFR > 90 mL/min per 1.73m² and persistent albuminuria.
- Stage 2: eGFR between 60 to 89 mL/min per 1.73m²
- Stage 3: eGFR between 30 to 59 mL/min per 1.73m²
- Stage 4: eGFR between 15 to 29 mL/min per 1.73m²
- Stage 5: eGFR < 15 mL/min per 1.73m² or End Stage Renal Disease.

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. If symptoms of upadrava of prameha and vrukka roga are considered the patient
can be diagnosed as case of ‘prameha upadravajanya kapha pradhan vrukkaroga’. Acharyas have advised to use combination of herbal medicines which have functions such as mutral, deepen, pachan, raktaprarasadak, virechak and rasayana.

Patient received chandraprabha vati which reduces kapha, pitta, dhatushaithilya (laxity), kleda, well known for its action on mutrendriya (basti) Hence, it acts as rasayana for mutravaha srotasa and have pramehaghna property. She also received punarnawashtak kwathi; which has punarnava, acts as shothaghna. Punarnava being Rasayan help to rejuvenate the nephron cells and plays reno-protective action (In experiments with Boerhviaduffusa there has been diuresis accompanied by increased excretion of sodium, 1972; Mudgal Planta, 1975 and In Nephrotic Syndrome,). As mentioned in Sharangdhara Samhita shunthi possesses Grahi property. Being grahi shunthi absorbs kleda and kapha. Gomutra being katu-tikta-kashaya it causes kleda shoshana. This collectively helps in kleda nirhana. Also increase the bioavailability of drug.

In the process of Ahara parinaman kriya, the Chaturvidha annapana undergoes the pachana by the action of pachaka pitta, enters to the pakhwashaya where it gets divided in to the Drava bhaga and the Ghana bhaga. The Ghana bhaga is the purisha and the Drava bhaga is the malakhya kleda and is carried to the Basti from the pakwashaya for excretion. Now because of Kapha prakopa and angimandya there is excessive product of mala roop kleda. According to Ayurveda Mootra is produced in Pakwashaya. In patients of CRF this Mootra Nirmiti Prakraiya is hampered. Hence, in Vajeri basti where we use decoction of Pakwashaya of goat so that with the support of ‘Samanya Vishesa Siddhant’ we provide similar factors to patient’s Pakwashaya which will help to regularize the urine production.

CONCLUSION:
As the number of diabetics is growing in India as well as worldwide, number of patients suffering from nephropathy will
also rise. Hence it is high time to improvise our treatment plans and help to answer complicated situations such as diabetic nephropathy. It is an observation in a single case and more studies in this direction would help in establishing ayurvedic treatment in this condition. Significant relief can be achieved in patients of nephropathy by applying principles of diagnosis and treatment of prameha and vrukkaroga. It’s a single case study and can lay down road ahead for further research.

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