Case Report

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(ISSN Online: 2229–3566, ISSN Print: 2277–4343)

SUSTAINING LIFE WITH ACUTE KIDNEY INJURY; IMPACT OF AYURVEDIC STRATEGIES IN IMPROVING THE PATIENT RELATED OUTCOMES: A CASE REPORT

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Received on: 31/1/25 Accepted on: 26/3/25

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DOI: 10.7897/2277-4343.16248

ABSTRACT

Introduction**:** Declining of kidney function abruptly along with subsequent dysregulation of electrolytes, volume of urine and abnormal retention of nitrogenous wastes can lead to an acute kidney failure. Acute kidney failure can be reversible with medicines but chronic kidney failure is usually irreversible, with rate of mortality being very high. So only way is to extend the lifespan with medications, dialysis therapy or kidney transplant. This creates a lot of practical difficulties to the patient. Failure of kidney function is indicated by rise in serum creatinine, increase in urea and decreased urine output. Case history: A 57-year-old female who was diabetic for 10 years had a sudden kidney related issue which she showed the symptoms of pedal edema, vomiting, tiredness, and mild fever. Her lab reports showed increased GFR with grade 1 kidney disease. She was under medication and after some days her condition worsened to grade 3 and she was advised for dialysis therapy. She was unwilling for dialysis and wanted to take Ayurvedic treatment as an alternative. She was advised the risks of treatment and a consent was taken. She was treated with Ayurveda medications and is continuing the treatment. Result: Ayurveda medicines played a major role in bringing a drastic change in reducing symptoms and improving the quality of life of the patient. Conclusion: Ayurveda medication along with a strict pathya-diet can bring down the severity of AKI and give a symptomatic relief. The quality of life of the patient changed to normal.

Keywords: Acute kidney injury, Mutraghatam, Shiva Gulika, Kidney Disease, Acute Renal Failure

INTRODUCTION

Acute kidney injury previously called as acute renal failure denotes a sudden and often reversible reduction in kidney function. It is measured by GFR (Glomerular Filtration Rate). AKI can lead to the accumulation of water, other metabolic products, and electrolyte disturbances[1]. Several criteria have been used to identify AKI, such as RIFLE, AKIN (Acute Kidney Injury Network) and KDIGO (kidney disease: improving global outcomes)[2]. Among these KDIGO is the most used tool.

According to KDIGO, AKI is the presence of any one of the following,
1. Increase in Serum Creatinine by 0.3 mg/dl or more within 48 hours
2. Increase in serum Creatinine to 1.5 times or more than the baseline for prior 7 days.
3. Urine volume less than 0.5 ml/kg/h for at least 6 hours.

Acute Kidney Failure can be symptomatic and asymptomatic.

Case Report

A 57 old female came to our Shalya tantra OPD, Sri Jayendra Saraswathi Ayurveda College and Hospital, Chennai, Tamil Nadu, India, with kidney related issues on 13/03/2024. She was diabetic for 10 years and was under medication.

Presenting complaints with a duration of 2 months
Pedal edema
Tiredness
Puffiness in orbital region
Vomiting
Mild fever
GFR showed kidney disease of grade 1.

She underwent treatment for 2 months and the conditions turned out worse and was admitted to the hospital and the GFR values showed a progression to grade 3 kidney disease. She was advised to go for a dialysis therapy. Due to personal reasons the patient was unwilling for a dialysis. She wanted try an alternative treatment and thus came to our department. She was well explained the risk and benefits of Ayurvedic treatment before the commencement of the treatment.

MATERIALS AND METHODS

Table 1: Treatment Details as per each Visit

Date	Medicines	Dosage
13/3/2024	1.Compound Ayurvedic preparation	2-0-2
	2.Punarnavadi Kashaya	10ml with 30ml lukewarm water OD one hour before food
22/3/2024	Continue 1 and 2 3.Shiva Gutika	1-0-1
2/4/2024	Continue 1,2 and 3	
15/4/2024	Continue 1,2 and 3	
27/4/2024	Continue 1 and 3 4.Gokshuran Choornam (5g) +Punarnava Choornam (5g) +Dhatri Choornam (5g) boiled in 1liter of water reduced to ½ liter used for drinking	
21/5 2024	Continue all the medicines	
3/6/2024	Continue 1,2 and 3 and Dhatri Lauha was added	1-0-1
18/6/2024	Continue all medicines	
3/7/2024	Continue all medicines	
24/7/2024	Continue all medicines	
14/8/2024	All medicines + Chandraprabha vati was added	1-0-1
21/8/2024	Continue all medicines	
18/9/2024	Continue all medicines	
9/10/2024	Continue all medicines	

RESULTS

Patient was asked to take renal function test periodically during the treatment course. There was a significant decrease in RFT values, showing effectiveness of Internal medication. A strict pathya-diet was followed during the entire course of treatment. The patient had an insect bite for which she took anti- allergic medications with cetirizine which caused a fluctuation in further lab readings.

Table 2: Lab investigations

Date	Serum Creatinine	Blood Urea	Serum Uric Acid	Hb%
Initial value 24/2/2024	4.7mg/dl	81mg/dl		
14/3/2023	2.8mg/dl	69 mg/dl	8.0mg/dl	9.2gm/dl
21/3/2024	2.7mg/dl	65mg/dl	6.9mg/dl	8.4 gm/dl
31/3/2024	2.5mg/dl	61mg/dl	6.2mg/dl	10.2 gm/dl
12/4/2024	2.3mg/dl	54mg/dl	5.9mg/dl	10.1 gm/dl
26/4/2024	2.5mg/dl	67mg/dl	5.7mg/dl	9.5 gm/dl
5/5/2024	2.2 mg/dl	49 mg/dl	5.0 mg/dl	8.9 gm/dl
19/5/2024	2.3mg/dl	56mg/dl	6.0mg/dl	11.9 gm/dl
30/5/2024	2.1 mg/dl	48 mg/dl	6.0mg/dl	9.9 gm/dl
14/6/2024	1.9mg/dl	52mg/dl	5.2mg/dl	10.5 gm/dl
3/7/2024	1.7mg/dl	62mg/dl	6.9 mg/dl	10.4 gm/dl
22/7/2024	1.7 mg/dl	61 mg/dl	6.2 mg/dl	10.9 gm/dl
13/8/2024	2.4 mg/dl	79 mg/dl	5.6 mg/dl	11.9 gm/dl
21/8/2024	2.4 mg/dl	68 mg/dl	5.7 mg/dl	11.4gm/dl
3/9/2024	2.1 mg/dl	45 mg/dl	5.1 mg/dl	10.6gm/dl
16/9/2024	1.9 mg/dl	42 mg/dl	5.1 mg/dl	16.3gm/dl
18/9/2024	1.80mg/dl	53.3mg/dl	7.3mg/dl	10.1gm/dl
7/10 /2024	2.45mg/dl	60.90mg/dl	7.3 mg/dl	10.2gm/dl
21/10/2024	1.7 mg/dl	54 mg/dl	6.9 mg/dl	11.3gm/dl

The RFT lab values shows the effectiveness of Ayurveda treatment in reducing symptoms of AKI. During the treatment course, the hemoglobin counts also increased and overall health condition of the patient seemed to be improved with weight gain from 47 kg to 50 kg.

Wholesome Diet (Pathya Pathyam)

Diet is very important when considering a kidney disease. Water content was asked to reduce up to 600 ml per day. Sodium intake should be lowered, strictly all sugary and calorie diets should be avoided. Protein intake should be less. High fat dairy products should not be taken. Advised to take raw papaya on daily basis.[3]

DISCUSSION

Benefits and probable mode of action of medicines given for the treatment.

Compound Ayurvedic Preparation

The active ingredients are Pashana bheda *(Bergenia ligutata),* Palasa pushpa (*Butea monosperma*) which is an anti-oxidant, Punarnava *(Boerhavia diffusa*), Sahadevi *(Sida rhombifolia),* Lajaloo Moola *(Mimosa pudica)*, which is anti-inflammatory, Sveta parpati, Varuna *(Cratevia religiosa),* Kulata *(Macrotyloma uniflorum),* Arka *(Calotropis gigantea),* Shuddha Shilajatu *(Black Bitumen),* Gokshura (*Tribulus terrestris),* Apamarga *(Achyranthes aspera)* all of which are diuretic and supports kidney function. The synergistic action of all these herbs provide excellent diuretic, anti-inflammatory and anti-oxidant activity normalizing urinary pH which has supported kidney health.

Punarnavadi Kasayam

Punarnava *(Boerhavia diffusa),* Daru *(Berberis aristate),* Nisha *(Curcuma longa),* Tikta *(Luffa echinata),* Patola *(Luffa acutetangula),* Hareetaki *(Terminalia chebula),* Neem

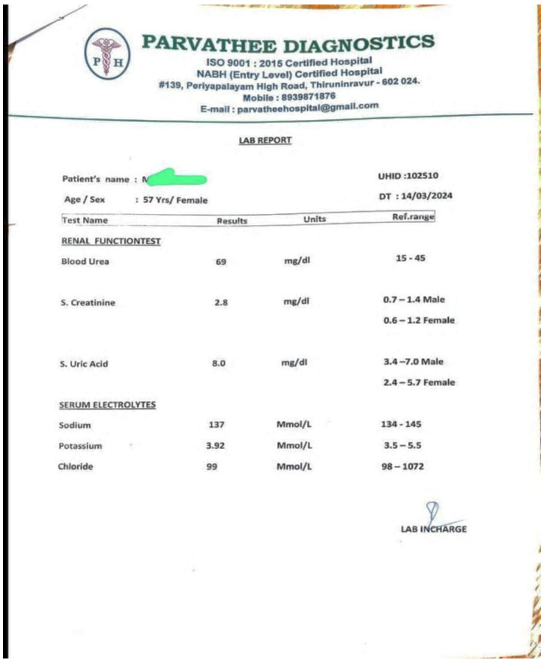
(Azadiracta indica), Musta *(Cyperus rotundus)* and Nagara *(Zingiber officinale)* are the active Ingredients. It is anti-inflammatory and beneficial for swelling and anemia.[4]

Shiva Gulika

Shilajatu is the most important Ingredient along with Dasamoola[6] and Triphala[7]. Shilajatu is useful in alleviating Tridosha (three types of dosha, Vata, Pitta, Kapha in Ayurveda responsible for bodily functions) and is yogavaha (a substance or a drug that combines with other medications to make it more effective) in nature. It is anti-diabetic and cures several diseases. Shiva Gulika is the most unique in its property as it is a rasayana (rejuvenator), brimhana (improves health) and shamana (pacifies) in its action. Shiva Gulika acts as an anti -biotic, analgesic, and anti-inflammatory, Immunomodulatory, and antiviral, anti-oxidant and anti-microbial. [5]

Gokshura[8], Punarnava and Dhatri Choornam 5 gm each kwatha decoction) prepared, is mootrala (diuretic), prameha hara (anti-diabetic). Gokshura is diuretic, Punarnava is anti-inflammatory and Datri is Pramehahara.

Dhatri Loham[9] helps to increase hemoglobin.



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LAB REPORT

Patient's name : M
UHID :102510
Age / Sex : 57 Yrs/ Female
DT : 14/03/2024

Test Name	Results	Units	Ref.range
RENAL FUNCTIONTEST			
Blood Urea	69	mg/dl	15 - 45
S. Creatinine	2.8	mg/dl	0.7 – 1.4 Male 0.6 – 1.2 Female
S. Uric Acid	8.0	mg/dl	3.4 –7.0 Male 2.4 – 5.7 Female
SERUM ELECTROLYTES			
Sodium	137	Mmol/L	134 - 145
Potassium	3.92	Mmol/L	3.5 – 5.5
Chloride	99	Mmol/L	98 – 1072

LAB INCHARGE

Figure 1: Lab investigation 1

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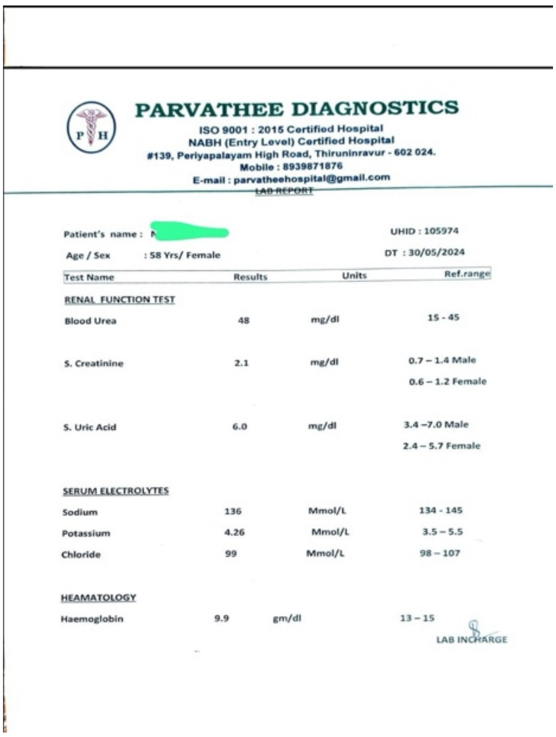
LAB REPORT

Patients name :
UHID : 104978
Age / Sex : 57 Yrs/ Female
DT : 05/05/2024

Test Name	Results	Units	Ref.range
RENAL FUNCTION TEST			
Blood Urea	49	mg/dl	15 - 45
S. Creatinine	2.2	mg/dl	0.7 – 1.4 Male 0.6 – 1.2 Female
S. Uric Acid	5.0	mg/dl	3.4 –7.0 Male 2.4 – 5.7 Female
SERUM ELECTROLYTES			
Sodium	139	Mmol/L	134 - 145
Potassium	4.27	Mmol/L	3.5 – 5.5
Chloride	103	Mmol/L	98 – 107
HAEMATOLOGY			
Haemoglobin	8.9	gm/dl	13 – 15

LAB INCHARGE

Figure 2: Lab investigation 2



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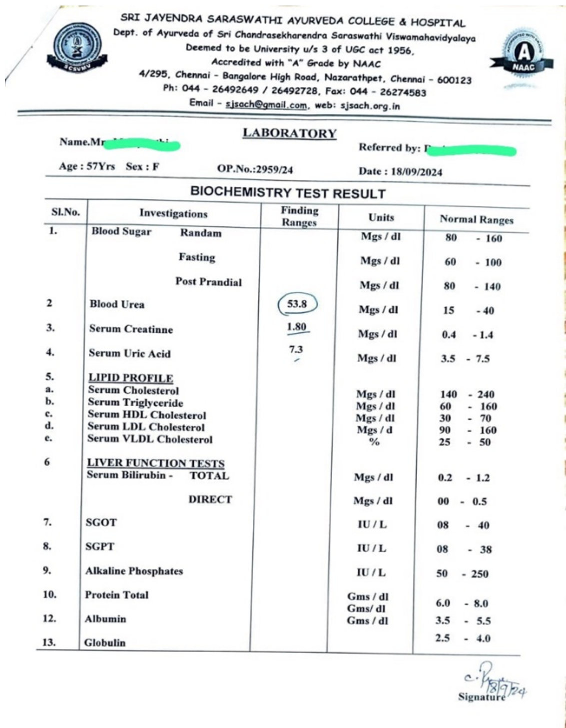
LAB REPORT

Patient's name : N
UHID : 105974
Age / Sex : 58 Yrs/ Female
DT : 30/05/2024

Test Name	Results	Units	Ref.range
RENAL FUNCTION TEST			
Blood Urea	48	mg/dl	15 - 45
S. Creatinine	2.1	mg/dl	0.7 – 1.4 Male 0.6 – 1.2 Female
S. Uric Acid	6.0	mg/dl	3.4 –7.0 Male 2.4 – 5.7 Female
SERUM ELECTROLYTES			
Sodium	136	Mmol/L	134 - 145
Potassium	4.26	Mmol/L	3.5 – 5.5
Chloride	99	Mmol/L	98 – 107
HEAMATOLOGY			
Haemoglobin	9.9	gm/dl	13 – 15

LAB INCHARGE

Figure 3: Lab investigations 3



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LABORATORY

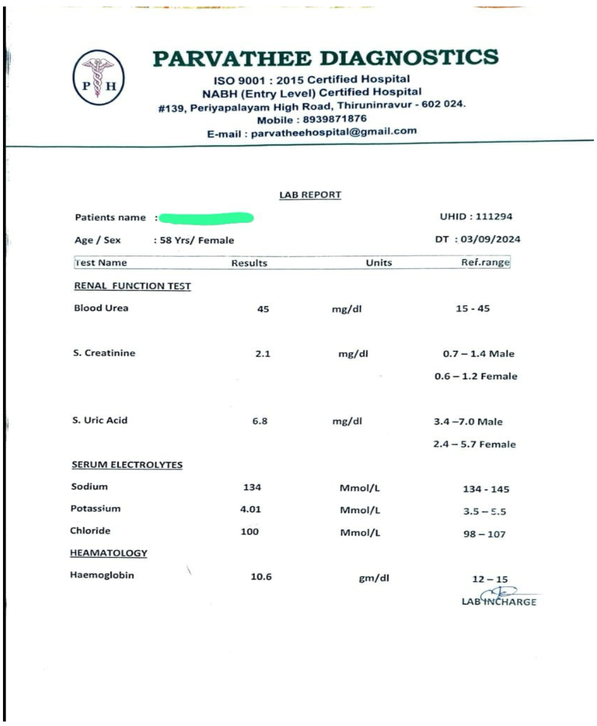
Name.Mr
Referred by: D
Age : 57Yrs Sex : F
OP.No.:2959/24
Date : 18/09/2024

BIOCHEMISTRY TEST RESULT

Sl.No.	Investigations	Finding Ranges	Units	Normal Ranges
1.	Blood Sugar Randam		Mgs / dl	80 - 160
	Fasting		Mgs / dl	60 - 100
	Post Prandial		Mgs / dl	80 - 140
2	Blood Urea	53.8	Mgs / dl	15 - 40
3.	Serum Creatinne	1.80	Mgs / dl	0.4 - 1.4
4.	Serum Uric Acid	7.3	Mgs / dl	3.5 - 7.5
5.	LIPID PROFILE			
a.	Serum Cholesterol		Mgs / dl	140 - 240
b.	Serum Triglyceride		Mgs / dl	60 - 160
c.	Serum HDL Cholesterol		Mgs / dl	30 - 70
d.	Serum LDL Cholesterol		Mgs / d	90 - 160
e.	Serum VLDL Cholesterol		%	25 - 50
6	LIVER FUNCTION TESTS			
	Serum Bilirubin - TOTAL		Mgs / dl	0.2 - 1.2
	DIRECT		Mgs / dl	00 - 0.5
7.	SGOT		IU / L	08 - 40
8.	SGPT		IU / L	08 - 38
9.	Alkaline Phosphates		IU / L	50 - 250
10.	Protein Total		Gms / dl Gms/ dl	6.0 - 8.0
12.	Albumin		Gms / dl	3.5 - 5.5
13.	Globulin			2.5 - 4.0

18/9/24
Signature

Figure 4: Lab investigation 4



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LAB REPORT

Patients name : [redacted] UHID : 111294
Age / Sex : 58 Yrs/ Female DT : 03/09/2024

Test Name	Results	Units	Ref.range
RENAL FUNCTION TEST			
Blood Urea	45	mg/dl	15 - 45
S. Creatinine	2.1	mg/dl	0.7 – 1.4 Male 0.6 – 1.2 Female
S. Uric Acid	6.8	mg/dl	3.4 –7.0 Male 2.4 – 5.7 Female
SERUM ELECTROLYTES			
Sodium	134	Mmol/L	134 - 145
Potassium	4.01	Mmol/L	3.5 – 5.5
Chloride	100	Mmol/L	98 – 107
HEAMATOLOGY			
Haemoglobin	10.6	gm/dl	12 – 15

LAB INCHARGE

Figure 5: Lab investigation 5

CONCLUSION

Sudden loss of kidney function due to the metabolic variations induced by Diabetic mellitus has resulted in AKI in this case. Various symptoms like fatigue, swelling, nausea and vomiting, decreased urinary output was been presented. The glomerular filtration rate indicated grade 3 kidney disease. So, for this condition the dialysis Therapy was indicated. Usage of Ayurvedic medications have improved the condition showing decline in kidney function test like serum creatinine, blood urea and uric acid levels. There was an improvement in serum electrolytes and hemoglobin count also. The quality of life of the patient has improved much better i.e., to a bedridden condition to active person. Acute kidney damage is a serious condition is sometimes reversible with medication and proper pathya-aahara. The prime purpose of this article was to highlight the improvement achieved in maintaining the quality of life of the patient through Ayurvedic Medicines. The results differ from case to case, so further a proper research study with proven evidence should be done. This case report shows a fluctuation in lab values, may be due to variations made by the patient in ahara and vihara, but certainly this opens a possibility of further research in this area.

Consent and Ethical Statement: An informed consent has been taken and the treatment has been caried out as per ICMR National Ethical guidelines for Biomedical and health research involving Human Participants.

Abbrevations
GFR-Glomerular Filtration Rate,
AKI-Acute Kidney Injury,
RIFLE-Risk, Injury, Failure, Loss, and End stage kidney disease,
AKIN-Acute Kidney Injury Network,
KDIGO-Kidney disease: improving global outcomes,
OPD-Out Patient Department,
RFT-Renal Function Test

ACKNOWLEDGEMENT

My Sincere thanks to our institution for providing the facilities for the case management and follow ups. My thanks to all the postgraduate students involved in case taking and documenting the reports as well as the informed Consent.

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Cite this article as:

Aparna Mambally, T. Udayakiren, Ravendra Kumar Tiwari, Hirpara Kishan MukeshBhai and Arya S. Menon. Sustaining life with Acute Kidney Injury; impact of Ayurvedic strategies in improving the patient related outcomes: A Case Report. Int. J. Res. Ayurveda Pharm. 2025;16(2):79-83
DOI: http://dx.doi.org/10.7897/2277-4343.16248

Source of support: Nil, Conflict of interest: None Declared