

Intestinal Dialysis Research Progress and the Early Treatment of A Non-Diabetic Patient with Symptomatic Uremia and Fatty Liver with Intestinal Dialysis: the Practice of Evidence-Based Medicine

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Abstract

Background: Chronic renal failure results from a variety of pathophysiological mechanisms and etiologies, and is associated with progressive and irreversible damage and loss of the kidneys' tissue leading to failure of the kidneys to excrete waste products, and also failure to perform some other functions. Many patients with chronic renal failure in a country like Iraq has been reported to be reluctant to accept dialysis therapies because of the wide spread notion of its association with high mortality. The lack of effective, convenient, and affordable therapy for chronic renal failure in many regions of the world should not mean should that the patients with advanced chronic renal failure are left without other suitable, convenient and acceptable care. The aim of this paper is to describe the early treatment of a patient with symptomatic uremia with intestinal dialysis.

Patients and methods: A 60-year non-diabetic male patient was experiencing progressive symptomatic uremia. On the 18th of November, 2023, blood urea was elevated at 217 mg/dL, serum creatine was 5.2 mg/dL, and he had symptomatic uremia with nausea, vomiting, fatigue, pruritus and anemia. The patient was treated with intestinal dialysis (Acacia gum supplementation plus conservative dietary and pharmacological management of chronic renal failure) which was prescribed according to the latest published guidelines. It was necessary during the first week of treatment to eliminate almost all dietary protein, and his diet was consisting mainly of high calorie juices, grapes, and water melon.

Results: When the patient was seen on the 2nd of December, 2023, treatment was associated with marked symptomatic and laboratory improvements. Blood urea was 115 mg /dL, serum creatine was 3.6 mg /dL. However, and serum calcium was 5.3 mg/dL (Normal ranges: 8-10.5 mg/dL). Therefore, oral alphacalcidol was added in a dose of 1 microgram daily.

Conclusion: Intestinal dialysis will continue to be used to improve the management of chronic renal failure and symptomatic uremia as long as there is no convenient and affordable therapy for chronic renal failure in many regions of the world.

Keywords: symptomatic uremia; intestinal dialysis; fatty liver; educational article; expert opinion.

Introduction

Chronic renal failure results from a variety of pathophysiological mechanisms and etiologies and is associated with progressive and irreversible damage and loss of the kidneys' tissue leading to failure of the kidneys to excrete waste products, and also failure to perform some other functions.

The incidence of chronic renal failure has been disturbingly increasing during the previous decades, and it has been increasingly considered as a global health problem. The availability of renal replacement therapy and its

quality are much less in developing countries than in the advanced countries. That was generally attributed to the associated high cost and the complexity of its technology. Economically disadvantaged countries have priorities to provide the basic health services and to improve them rather than to offer expensive therapeutic technologies that are considered by a significant number of their populations as inconvenient. Many patients with chronic renal failure in a country like Iraq has been reported to be reluctant to accept dialysis therapies because of the wide spread notion of its association with

high mortality. The lack of convenient and affordable therapy for chronic renal failure in many regions of the world should not mean that the patients with advanced chronic renal failure are left without other suitable, convenient and acceptable care.

Therefore, the need for a more robust and more convenient therapy for chronic renal failure has been increasingly emphasized during the previous two decades. A novel urea lowering dietary therapy that could provide a novel paradigm for the management of chronic renal failure has been described. This new dietary therapy was used in combination with the traditional known therapies of chronic renal failure, and has been increasingly known as intestinal dialysis [1, 2, 3].

The aim of this paper is to describe the initial treatment of a patient with symptomatic uremia with intestinal dialysis.

Patients and methods

A 60-year non-diabetic male patient was experiencing progressive symptomatic uremia with anorexia, fatigue, pruritus and anemia over the previous weeks. On the 12th of November, 2023, blood urea was elevated at 220 mg/dL, serum creatine was 5.2 mg/dL, and he was anemic with hemoglobin at 9.7 g/dL (Normal ranges: 11.5-16.5 g/dL). Urinalysis didn't show important findings. He was seen by more than two doctors, and all referred him for dialysis treatment which he and his family consistently rejected.

On the 18th of November, 2023, blood urea was elevated at 217 mg/dL, serum creatine was 5.2 mg/dL, and he had symptomatic uremia with nausea, vomiting, fatigue, pruritus and anemia. He was also experiencing reduction of the urine output and anemic with hemoglobin at 9.7 g/dL (Normal ranges: 11.5-16.5 g/dL).

The patient was treated with intestinal dialysis (Acacia gum supplementation plus conservative dietary and pharmacological management of chronic renal failure) which was prescribed according to the latest published guidelines [4-13].

He received:

Bumetanide 1 mg twice daily to improve urine output. Oral ferrous sulfate 200 mg three times daily, to be continued and adjusted according to hemoglobin level. Oral calcium carbonate 1000 mg daily, to be continued indefinitely. Intramuscular pyridoxine 100 mg daily for 7 days. Intramuscular Vitamine B complex daily for 7 days. Oral alphacalcidol 1 mcg daily, to be continued with dose adjustment as necessary according to

the serum calcium level. Oral cetirizine hydrochloride 10 mg once at night and topical crotamiton were use to control pruritus as long as they were needed.

He also received acacia gum powder 25g dissolved in 250 ml Diet 7Up, and given three times daily before meals. It was necessary to give him oral domperidone (Motilium) 10 mg three times daily to prevent and reduce the occurrence of abdominal distention and discomfort of the intake. It was necessary during the first week of treatment to eliminate almost all dietary protein, and his diet was consisting mainly of high calorie juices, grapes, and water melon. Therefore, nutritional support with oral royal jelly capsules was added to prevent any unexpected nutritional deficiency.

Results

When the patient was seen on the 2nd of December, 2023, treatment was associated with marked symptomatic and laboratory improvements. Blood urea was 115 mg /dL, serum creatine was 3.6 mg /dL, but he was still anemic with hemoglobin at 9.4 g/dL (Normal ranges: 11.5-16.5 g/dL). Therefore, a one-week course of daily intramuscular iron dextran (100 mg daily) was prescribed. Serum calcium was 5.3 mg/dL (Normal ranges: 8-10.5 mg/dL). Therefore, oral alphacalcidol was added in a dose of 1 microgram daily (The dose to be adjusted as necessary according to serum calcium level).

Ultrasound imaging (Figure-1) showed reduction in renal size (RK: 9.6 x 4.5 cm, LK: 9.5 x 4.5 cm) [Adults male normal renal size is 10 x 9-14x13 cm] with increased parenchymal echotexture suggestive of bilateral parenchymal renal disease). Medullary pyramid thickness of both kidneys was 13 mm.

There was no pelvi-calyceal dilatation, but there were coarse crystals with the collecting system of both kidneys. Therefore, the patient received oral essential oil terpenes (Urine) based on the evidence presented by Al-Mosawi AJ [14, 15, 16, 17].

Ultrasound imaging also showed gaseous bowel loop, the spleen, pancreas, and gall bladder were normal in appearance, the common bile duct was not dilated (4 mm in diameter), and the main portal vein was not dilated. The liver was of normal size, but was showing mild fatty changes. Therefore, oral silymarin (Lealon) 75 mg once daily was prescribed based on the evidence provided by Burova and colleagues (2010), Luis (2015) [18,19].

The urinary bladder was normal and had normal bladder thickness (Pre-voiding volume was 150 ml, and the re-voiding volume was 4 ml, but the prostate was enlarged with smooth surface and a volume of 40.8 ml (Normal: 25 ml). Therefore, Oral finasteride was added.

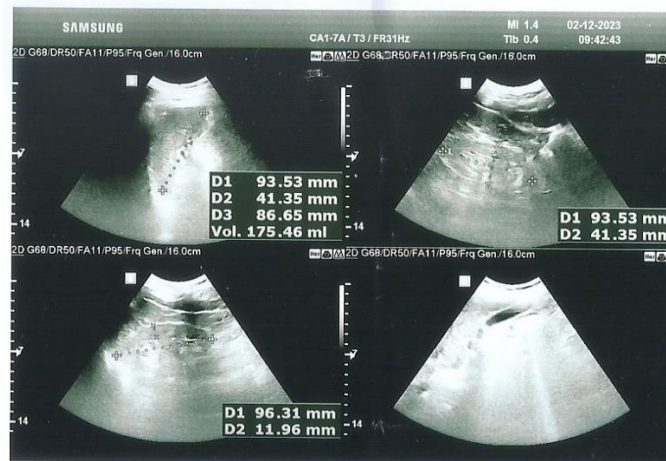


Figure-1A: Renal ultrasound

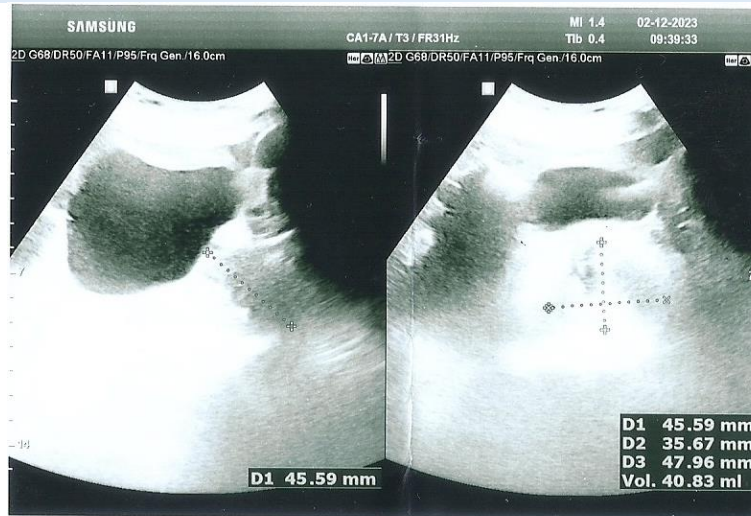


Figure-1B: Abdominal ultrasound

Discussion

Obesity and diabetes are generally considered the most important risk factors for developing fatty changes in the liver [2]. Although, the patient in this report was not diabetic or obese, he had ultrasound evidence of fatty changes in the liver. However, in 2015, Ludovico Abenavoli from Italy and his research team considered fatty liver that is not related to alcohol to be the most common liver disorder throughout the world [21].

Zobair Younossi from the United States and his international research group emphasized that although obesity is the major risk factor for the development of non-alcoholic liver disease, a large number of patients with the condition are not obese [22].

The lack of convenient and affordable therapy for chronic renal failure in many regions of the world should not mean should that the patients with advanced chronic renal failure are left without other suitable, convenient and acceptable care.

Therefore, the need for a more robust and more convenient therapy for chronic renal failure has been increasingly emphasized during the previous two decades. A novel urea lowering dietary therapy that could provide a novel paradigm for the management of chronic renal failure has been described. This new dietary therapy was used in combination with the traditional known therapies of chronic renal failure, and has been increasingly known as intestinal dialysis [1, 2, 3].

The use of a dietary material to increase extra-renal excretion and shift the urinary excretion of urea to the intestinal excretion has been increasingly called "Intestinal dialysis technology" [23, 24].

The clinical use of intestinal dialysis has been increasingly reported as early as the 2000s, and was first endorsed by Ira Greifer (Figure-2), a pioneer of pediatric nephrology [1, 2, 3, 23-32].



Figure-2: Ira Greifer, a pioneer of pediatric nephrology

Introducing acacia gum which is a safe dietary fiber as a medicine for its urea lowering effect was first suggested in 2006, and its role in the management of chronic renal failure was emphasized [33,34,35,36].

Conclusion

Intestinal dialysis will continue to be used to improve the management of chronic renal failure and symptomatic uremia as long as there is no convenient and affordable therapy for chronic renal failure in many regions of the world.

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The author has the copyright of the sketch in this paper.

Conflict of interest: None.

References

- Al-Mosawi AJ. (2023). Another patient with symptomatic uremia treated with intestinal dialysis: An educational article. *International Journal of Medical Sciences and Academic Research* (ISSN: 2582-7197), 2021; 2 (01): 1-7.
- Al-Mosawi AJ. (2023). The Rare Association of Adult Polycystic Kidney with Hearing Impairment and Further Experience with Intestinal Dialysis: An Educational Article. *International Journal of Clinical Nephrology* (ISSN: 2834-5142); 5 (4):1-9.
- Al-Mosawi AJ. Intestinal dialysis research progress. LAP LAMBERT Academic Publishing: 2023-11-22 (ISBN: 978-620-6-84663-5).
- Al-Mosawi AJ. (2020). Intestinal (Dietary) Dialysis: A Practical Nutritional Guide. *Journal of Urology and research* (ISSN: 2379-951X); 7 (1): 1118 [1-3].
- Al-Mosawi AJ. (2020). Intestinal dietary dialysis: A practical treatment guide. 1st ed., Saarbrücken; LAP Lambert Academic Publishing: (ISBN: 978-3-659-87697-4).
- Al-Mosawi AJ. (2020). Кишечный диетический диализ: Практическое руководство по лечению (Russian Edition) Sciencia Scripts: (ISBN-10: 6202595264, ISBN-13: 978-6202595261).
- Al-Mosawi AJ. (2020). Intestinale diätetische Dialyse: Ein praktischer Behandlungslleitfaden (German edition) Verlag Unser Vissen:(ISBN: 978-620-2-59519-3).
- Al-Mosawi AJ.(2020). La dialyse intestinale alimentaire: Un guide pratique de traitement (French edition). *Editions Notre Savoir*: (ISBN: 978-620-2-59521-6).
- Al-Mosawi AJ. (2020). Dialisi dietetica intestinale: Una guida pratica al trattamento (Italian edition). Edzioni Sapienza: (ISBN: 978-620-2-595 22-23).
- Al-Mosawi AJ. (2020). Diálisis dietética intestinal: Una guía práctica de tratamiento (Spanish edition). Ediciones Nuestro Conocimiento /6/18 (ISBN: 978-620-2-59520-9).
- Al-Mosawi AJ. (2020). Darmdialyse: Een praktische behandelingsgids (Dutch edition). Uitgeverij Onze kennis: (ISBN: 978-620-2-59523-0).
- Al-Mosawi AJ. Dializa żywieniowa dojelitowa: Praktyczny przewodnik leczenia (Polish edition) . Wnictwo Nasza Wiedza: 2020 (ISBN: 978-620-2-59524-7).
- Al-Mosawi AJ. (2020). Diálise dietética intestinal: Um guia de tratamento prático (Portuguese edition) .Edições Nosso Conhecimento: (ISBN: 978-620-2-59525-4).
- Al-Mosawi AJ. (2005). A possible role of essential oil terpenes in the management of childhood urolithiasis. *Therapy (Clinical practice)* [p-ISSN: 2044-9038, e-ISSN: 2044-9046] Mar; 2(2):243-247.
- Al-Mosawi AJ. (2010). Essential oil terpenes: adjunctive role in the management of childhood urolithiasis *J Med Food*. Apr; 13(2):247-250.
- Al-Mosawi AJ. (2020). The treatment of childhood progressive bilateral multiple renal stone disease: A role of essential oil terpenes. *Archive Urological Research* (ISSN: 2692-4706) March 19; 4(1): 007-009.
- Al-Mosawi AJ. (2013). Role of plant essential oil terpenes in renal disorders. In: J.N. Govil and Sanjib Bhattacharya (Ed). *Recent Progress in Medicinal Plants Vol. 36: Essential Oils*. Studium Press LLC,
- Buturova LI, Tsybizova TA, Kalinin AV. (2010). [Use of Legalon in non-alcoholic fatty liver disease]. *Eksp Klin Gastroenterol* ;(5):69-75 [Article in Russian].
- Aller R, Izaola O, Gómez S, Tafur C, González G, ET ALL., (2015). Effect of silymarin plus vitamin E in patients with non-alcoholic fatty liver disease. A randomized clinical pilot study. *Eur Rev Med Pharmacol Sci Aug*; 19 (16):3118-3124.
- Wong VW, Chan WK, Chitturi S, Chawla Y, Dan YY, ET ALL., (2018). Asia-Pacific Working Party on Non-alcoholic Fatty Liver Disease guidelines 2017-Part 1: Definition, risk factors and assessment. *J Gastroenterol Hepatol*. Jan; 33(1):70-85.
- Abenavoli L, Greco M, Na zionale I, Peta V, Milic N, et all., (2015). Effects of Mediterranean diet supplemented with silybin-vitamin E-phospholipid complex in overweight patients with non-alcoholic fatty liver disease. *Expert Rev Gastroenterol Hepatol Apr*; 9(4):519-27.
- Younossi Z, Anstee QM, Marietti M, Hardy T, Henry L, et all., (2018). Global burden of NAFLD and NASH: trends, predictions, risk factors and prevention. *Nat Rev Gastroenterol Hepatol Jan*; 15(1):11-20.
- Al-Mosawi AJ. (2019). Dietary dialysis with acacia gum: Intestinal dialysis technology. *Advancements in Journal of Urology and Nephrology* (ISSN 2689-8616) Nov 18; 2(1): 1-8.
- Al-Mosawi AJ. A (2020). Mew Dietary Therapy for Chronic Renal Failure: Intestinal Dialysis Technology. *Journal of medical and surgical urology*; 1(1): 8-16.
- Al-Mosawi AJ. (2002). The challenge of chronic renal failure in the developing world: possible use of acacia gum. *Pediatr Nephrol May*; 17(5):390-391.
- Al-Mosawi AJ. (2004). Acacia gum supplementation of a low-protein diet in children with end-stage renal disease. *Pediatr Nephrol*. Oct; 19(10): 1156-1159.
- Al-Mosawi AJ. (2007). The use of acacia gum in end stage renal failure. *J Trop Pediatr Oct*; 53(5):362-365.
- Al-Mosawi AJ. (2009). Six-year dialysis freedom in end-stage renal disease. *Clin Exp Nephrol Oct*; 13(5):494-500.
- Al-Mosawi AJ. (2006). Continuous renal replacement in the developing world: Is there any alternative. *Therapy (Clinical practice)* [p-ISSN: 2044-9038, e-ISSN: 2044-9046] Mar:3(2): 265-272.
- Al-Mosawi AJ. (2020). History of Medicine: The Emergence of Intestinal Dialysis. *Sunkist Nephrology and Urology Journal August 22*; 2 (1): 1-8.
- Al-Mosawi AJ. (2020). Intestinal dialysis in a uremic patient with diabetic nephropathy: A challenging case and a unique experience. *Journal of Pharmaceutical Research and Development August 8, 20*; 1 (1):1-4.
- Al-Mosawi AJ. (2017). Advances of peritoneal dialysis in the developing world: Combined intermittent peritoneal dialysis and intestinal dialysis (Chapter 3). In Marcia Bell, Ed, *Peritoneal Dialysis: Practices, Complications and Outcomes*. Nova Science Publisher, New York, (ISBN: 978-1-53610-515-5).

33. Al-Mosawi AJ. (2006). Acacia gum (gum Arabic). *Therapy (Clinical practice)* [p-ISSN: 2044-9038, e-ISSN: 2044-9046] Mar (3); 2:311-312.
34. Al-Mosawi AJ. (2006). A step towards the introduction of acacia gum as a medicine. *Therapy (Clinical practice)* [p-ISSN: 2044-9038, e-ISSN: 2044-9046] Mar (3); 2:313-314.
35. Al-Mosawi AJ. (2006). Principles: clinical pathophysiology of uremia and relevant urea metabolism. *Therapy (Clinical practice)* [p-ISSN: 2044-9038, e-ISSN: 2044-9046] Mar (3); 2:303.
36. Al-Mosawi AJ. (2006). Acacia gum therapeutic potential: possible role in the management of uremia: a new potential medicine. *Therapy (Clinical practice)* [p-ISSN: 2044-9038, e-ISSN: 2044-9046], Mar; 3(2) 301-321. [A special article journal supplement including several articles introducing acacia gum as a new urea lowering agent].



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