JOJ
Urology & Nephrology
ISSN: 2476-0552

Juniper Publishers
key to the Researchers

Case Report
Volume 8 Issue 1 - March 2023
DOI: 10.19080/JOJUN.2023.08.555727

JOJ uro & nephron

Acutisation of Chronic Renal Failure: About A Case after taking A Plant (Cassia Italica), at the Peace Hospital of Ziguinchor in Southern Senegal (West Africa)

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Submission: February 16, 2023; **Published:** March 13, 2023

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Abstract

Acute renal failure induced by medicinal plants in Africa is uncertain because the majority of cases are unreported. We present a case of an acutisation of chronic renal failure following the consumption of Cassia Italica leaves. Mrs K.G, 68 years old followed in the nephrology department for stable severe chronic renal failure. The basic renal function (creatinine at 85 mg/l and blood urea at 1.22 g/l (GFR: 28.23 ml/min/1.73m2). She consults for uncontrollable vomiting, epigastralgia, obnubilation. The clinical examination had objectified a calm coma without signs of neurological localization, anuria, edema of the lower limbs and grade III arterial hypertension (BP: 180/100mmHg). The biological assessment showed impaired renal function with serum creatinine at 228.5 mg/l and blood urea at 2.65 g/l. The family admits taking the poison 48 hours before hospitalization by excessive consumption of Cassia italica leaves in the form of a decoction. The use of plants by patients followed in nephrology can aggravate pre-existing kidney disease.

Keywords: Cassia Italica; IRA; IRC; Ziguinchor; Senegal

Introduction

The use of medicinal plants has known a resurgence in recent years in most countries of the world, even the most developed ones. A survey found that 42% of Americans use alternative therapies with 12% using herbal remedies [1]. The reputation of total harmlessness of these plants, generally based on ancestral use, also largely explains this renewed interest of the general public for so-called "alternative" medicines. Consumers often believe that natural is synonymous with harmless. A plant can be both useful and toxic at the same time. Toxic damage concerns most organs, we can cite in particular cardiac damage by poisoning with aconite or lung damage linked to certain mints, but it is above all kidney damage that is the most frequent [2]. The nephrotoxicity of medicinal plants can be defined very broadly as all the functional or structural renal alterations, induced directly or indirectly by the substances contained in these plants and which are absorbed into the body regardless of the nature pathway [3].

Cassia Italica is a very widespread plant in the world. In India, its leaves are used as hair care; in East Africa the plant is used as fodder; the Mauritanians smoke its seeds; and in the Senegalese countryside, where it is known as leydour, it is cultivated for its medicinal properties and compensates for the agricultural losses due to climate change [3]. In traditional Senegalese medicine, the leaves, pods and seeds of leydour are used to treat stomach aches, fever, jaundice, venereal diseases... the plant is also prescribed as a treatment for intestinal worms and its leaves are used as a poultice to treat skin problems such as burns and ulcers [3]. We report the case of a patient followed

for acute stage IV chronic kidney disease by massive intake of cassia italica in the nephrology department of the Ziguinchor Peace Hospital in southern Senegal.

Case Report

A 68 year old woman, followed in the nephrology department for stable stage IV chronic renal failure, the initial nephropathy of which would be benign nephroangiosclerosis. she had baseline renal function with serum creatinine at 85 mg/l and blood urea at 1.22 g/l, i.e., a Glomerular Filtration Rate (GFR) according to MDRD of 28.23 ml/min/1.73 m2. She consults for uncontrollable vomiting without diarrhea, epigastric pain and obtundation. The clinical examination had objectified a deep calm coma without signs of neurological localization with dyspnea of kussmaul. The diuresis is 250 cc/24h, there was edema of the lower limbs. We note a grade III arterial hypertension (blood pressure at 180/100 mm Hg) and the temperature was normal. 65 g/l, a hemoglobin level at 8.1 g/dl, a hypocalcaemia at 82 mg/l.24h proteinuria was 0.86g/24h. The liver test was normal. The blood ionogram showed hyperkalemia at 6.6 mmol/l and hyponatremia at 126 mmol/l. Kidney ultrasound shows poorly differentiated atrophic kidneys. Upper digestive fibroscopy reveals multiple ulcerations measuring 2 to 4 mm at the level of the pre-pyloric antrum, probably related to toxicity. Cassia italica underform of decoction to treat constipation. The diagnosis of acutisation of chronic renal failure by acute tubular necrosis of toxic origin was retained. The evolution was favorable, with a resumption of diuresis at 1400 cc/24h, disappearance of symptoms, after medical treatment and 4 successive hemodialysis sessions in the first week. After 3 weeks of treatment, there is a return to baseline renal function (serum creatinine at 95 mg/l, blood urea at 0.95 g/l, i.e. a GFR of 25.75 ml/min/1.73 m2). The patient continues her follow-up in an outpatient nephrology consultation.

Discussion

According to the World Health Organization (WHO), in certain developing countries of Asia, Africa and Latin America, 80% of the population depends on traditional medicine, especially in rural areas because of the proximity and accessibility of this type of treatment at an affordable cost and especially because of the lack of access to modern medicine for these populations [4]. In France and Belgium, plant poisoning accounts for about 5% of poisonings, in Italy 6.5%, in Switzerland 7.2% and in Turkey 6% [5]. Plants are the cause of 5% of poisonings reported to the Strasbourg poison control center and 3.2% of poisonings according to the American Association of Poison Control Centers [6-7].

In Africa, this frequency remains difficult to estimate due to the lack of data. Cassia Italica is a very widespread plant in the world. It is used in Senegal for its medicinal properties, particularly in the treatment of constipation and compensates for agricultural losses due to climate change. To our knowledge, no kidney damage related to the use of this plant has been reported in the literature. However, cases of acute renal failure after oral intake of Carapa Procera oil-based plant were reported by Kane and al in 2020 and the outcome was favorable after medical treatment and hemodialysis sessions [8]. kidney damage is favored by several factors including unconventional preparations rarely meeting the required essential standards of consistency in composition and biological activity, herbal preparations can be contaminated with pesticides and heavy metals, an error in the identification of plants can also occur, an interaction with a drug administered to the patient concomitantly and finally an association with an unidentified plant species [9].

Most of the studies on these nephropathies have been carried out in Taiwan and certain countries in South Africa, given the frequency of renal insufficiency and the use of medicinal plants in these countries. These studies showed a female predominance with an age range between 60 and 79 years. Most cases came from rural areas and had a low socioeconomic level [10]. All these characteristics were noted in our patient. This nephrotoxicity can be manifested by all forms of renal damage ranging from pre-renal renal failure to obstructive renal failure through hydro-electrolyte disorders. In the literature, pre-renal involvement is found in 26.9% and is represented by functional renal failure which may result from dehydration caused by vomiting or diarrhea [11-12]. This was the case in our patient. Organic renal involvement can affect all tunics, but tubulo-interstitial involvement is the most represented. Acute tubular necrosis that is toxic or complicates functional renal failure represents 26.9% [9]. In our patient, it is probably an acute tubular necrosis complicating functional renal failure secondary to dehydration (vomiting) because no direct toxicity related to cassia italica has been reported and its components are not generally toxic to human being. Ionic disorders are very frequent, dominated by hyperkalaemia [10], as was the case in our patient who had hyperkaliemia at 6.6 mmol/l.

The frequency of this renal damage is linked to the significant use of this herbal medicine favored by illiteracy, the limited income of the population, adverse effects related to drugs and in general socio-cultural factors. At the same time, many unskilled people have invested in this very profitable field by prescribing herbal recipes without any knowledge. However, the evolution of these kidney damage is most often favorable if treatment is early with the availability of means of extra renal purification, as was the case in our patient after 4 sessions of hemodialysis with recovery of the basic kidney function.

Conclusion

The treatment of patients based on the application of medicinal plants is a reality in the world, in Africa and particularly in Senegal. These plants can cause harmful effects on the health of the population. In the case described based on the report of

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the family, clinical and biological examinations refer to kidney damage linked to the toxicity of the plant. The reputation for harmlessness of medicinal plants, generally based on ancestral use, must be questioned, especially in patients followed for kidney disease, because some plants are both useful and toxic, hence the importance of good monitoring of populations exposed to this herbal medicine, better organization and better collaboration between doctors and traditional healers.

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