

Acute Kidney Injury Secondary to Renal Protective Agent Oil of *Nigella sativa*: Case Report

Renal Hasarlanmayı Önlediği Bilinen Çörek Otu Yağına Bağlı Akut Böbrek Hasarı

Engin ONAN,^a
Saime PAYDAŞ,^a
Tuba KORKMAZ,^b
Merve ERKOÇ,^b
Mustafa BALAL^a

Departments of
^aNephrology,
^bInternal Medicine,
Çukurova University Faculty of Medicine,
Adana

Geliş Tarihi/Received: 16.12.2015
Kabul Tarihi/Accepted: 16.02.2016

Yazışma Adresi/Correspondence:
Saime PAYDAŞ
Çukurova University Faculty of Medicine,
Department of Nephrology, Adana,
TÜRKİYE/TURKEY
spaydas@cu.edu.tr

ABSTRACT Black seed oil or cumin commonly is used in herbal medicine all over the world for the treatment and prevention of a number of diseases. Fifty-one year old diabetic and hypertensive female admitted to our department for renal failure. History, physical examination and laboratory tests were not informative for acute renal injury. She was oligo-anuric for 10 days. Her renal failure has required dialysis. At last she said that she had drincken black seed oil in high doses. In follow-up period renal function improved. In this paper we would like to draw attention to the harmful effects of the herbal medicines.

Key Words: *Nigella sativa*; herbal medicine; acute kidney injury

ÖZET Çörek otu yağı tüm dünyada birçok hastalığın önlenmesi ve tedavisi amacıyla alternatif bir metod olarak yaygın şekilde kullanılmaktadır. Ellibir yaşındaki diyabetik ve hipertansif kadın hasta kliniğimize böbrek yetersizliği nedeniyle yatırıldı. Öykü, fizik muayene ve laboratuvar testleri akut böbrek yetersizliğinin nedeni açısından bilgi verici değildi. Hasta 10 gün boyunca oligo-anürik olarak izlendi. Hastaya hemodiyaliz uygulandı. Hasta takibi sırasında hastaneye yatmadan önceki dönemde yüksek dozda çörek otu yağı aldığını itiraf etti. Klinik takipte hastanın böbrek fonksiyonları düzeldi. Bu olgu sunumu alternatif bitkisel tedavilerin zararlı etkilerine dikkat çekmek amacıyla hazırlanmıştır.

Anahtar Kelimeler: *Nigella sativa*; bitkisel tıp; akut böbrek hasarı

Türkiye Klinikleri J Nephrol 2015;10(2):50-2

Drugs and toxins have an important place for the development of acute kidney injury. There are some reports about herbal drugs that has positive or negative effect for kidney. The seeds of *Nigella sativa* Linn. (Ranunculaceae), commonly known as black seed or black cumin, are used in herbal medicine all over the world for the treatment and prevention of a number of diseases and conditions. In this report we presented a case with diabetes developed acute kidney injury connected to black seed oil consumption.

CASE REPORT

A 51 year-old woman was admitted to the hospital because of nausea and vomiting. Approximately 1 week before this admission her urinary output was decreased 100 cc/per day but there were no signs or clues for acute

renal failure. On examination her blood pressure was 120/80 mmHg, had 36.2 °C body temperature and her pulse was 84 beat per minute. There was mild bilateral pretibial edema. The remainder of the examination was normal. She was hospitalized to nephrology department. On her history she had diabetes mellitus and hypertension for three years. She had discontinued vildagliptin/metformin last 3 months. There were no uremic symptoms except nausea and vomiting. Her urine sodium was 70 mmol/L and on urinary sediment analysis there was 1 leukocyte cast, plenty of isomorphic leukocytes and rare erythrocytes. She was oligo-anuric for ten days. Urinary output increased to 3600 cc per day on following days. Peripheral blood smear was normal. Chest radiography, abdominal ultrasonography, echocardiography and renal doppler ultrasound investigations were normal. She underwent hemodialysis for 2 times due to uremic vomiting. Her kidney size was normal but she was diabetic. The patient refused to undergo kidney biopsy. On following days her urine volume increased and serum levels of BUN (blood urine nitrogen) and creatinine decreased. On 12th hospital day she said that she had drincken black seed oil in high dose (15X recommended dose/day) for 20 days. Laboratory data is summarized as table (Table 1).

DISCUSSION

Our patient was admitted to the hospital with complaints of decrease in urinary output, nausea and vomiting. She had high BUN/creatinine levels and

acute kidney injury was considered. Firstly there was not enough information on history, physical examination to explain this oligo-anuria. Biochemical, immunological and radiological investigations were not diagnostic. For uremic symptoms she underwent hemodialysis for 2 times. Renal biopsy was rejected by her. On 12th hospital day she confessed black seed oil consumption in high doses (X15 recommended dose). After two week urine volume increased and renal function improved.

Black seed oil which contains both fixed and essential oils, proteins, alkaloids and saponin, has protective effects for renal-hepatic injury. Much of the biological activity of the seeds have been shown to be due to thymoquinone, the major component of the essential oil. The pharmacological actions of the crude extracts of the seeds (and some of its active constituents, e.g. volatile oil and thymoquinone) that have been reported include protection against nephrotoxicity and hepatotoxicity induced by either disease or chemicals.¹ Topical dermatitis has been reported in 2 patients but nephrotoxicity or hepatotoxicity has not been reported.² Consumption of black seed oil in high dose and comorbidities such as diabetes, hypertension may have facilitated the development of renal injury in our patient.

In conclusion; black seed oil shows the biological effect by the thymoquinone and is known to have a protective effect against renal-hepatic damage. History of diabetes and hypertension and eating black seed oil in high doses may have

TABLE 1: Laboratory measurements of the patient.

Parameters	Reference Range, Adults	On admission	20 th day	40 th day	80 th day
Hemoglobin	(13.6-17.2 g/dL)	11	9.5	9.6	13
Leukocyte	(4.5-10.3 mm ³)	29.1	8.1	12.6	11.63
Lymphocyte	%20-44	7.3	28.9	40.4	44.3
Monocyte	%5.1-9	1.1	9.8	5.5	5.4
Eosinophil	%0-0.5	0.3	8.4	2.5	1.8
Thrombocytes	156-373 10 ³ /μL	534	365	518	446
Glucose	70-105 (mg/dL)	139	128	127	155
BUN/Creatinine	8-20 (mg/dL)/ 0.4-1 (mg/dL)	107/10.86	93/4.22	20/0.95	9/0.54
Lactate dehydrogenase	115-248 (U/L)	400	168	163	-
K ⁺	3.6-5.1 (mmol/L)	4.3	3.1	3.9	4.4
Total protein/Albumin	6.1-7.9 (g/dL)/ 3.5-4.8 (g/dL)	-/-	8.1/3.8	7.8/3.8	7/3.9

facilitated the development of acute kidney injury. Here we would like to draw attention to the harmful effects of the herbal medicines which is known as having healthful effects, at least in some dosage.

Acknowledgements

This document was prepared as a poster presentation at 32nd Nephrology, Hypertension, Dialysis and Transplantation Congress of the Turkish Society of Nephrology.

REFERENCES

1. Ali BH, Blunden G. Pharmacological and toxicological properties of Nigella sativa. *Phytother Res* 2003;17(4):299-305.
2. Steinmann A, Schätzle M, Agathos M, Breit R. Allergic contact dermatitis from black cumin (Nigella sativa) oil after topical use. *Contact Dermatitis* 1997;36(5):268-9.