

The Case of Allen Blake: Albuminuria and Type 2 Diabetes

Background

Mr. Blake is a 36-year-old white male with type 2 diabetes and albuminuria. He is here because his physician said something about “kidney damage.” He states he does not eat breakfast or lunch; however, he stops every morning at a convenience store before work for snacks. He works construction, lives alone, and doesn’t want to cook.

He does not monitor glucose and denies hypoglycemia. Reports frequent urination at night, thirst, fatigue and blurry vision at times. Takes diabetes medication in the morning only, misses second dose most days. He takes all 4 glyburide/metformin tablets at once when his vision is blurred. States blood pressure medication makes him cough and he doesn’t always take it.

He drinks 3 – 4 beers on Friday and Saturday nights. He smokes a pack of cigarettes daily.

Physical exam: obese with mild edema to left leg. Left foot ulcer is healing. No obvious nutrient deficiencies. Reports one tooth is loose, located on upper left. It is painful to chew certain foods.

MNT Referral Data

Labs: urine-albumin-to-creatinine ratio (UACR) 3,894, creatinine 1.2, eGFR > 60, K 4.2, HCO₃ 25.7, BUN 19, Ca 9.2, Phos 4.0, LDL 72, HDL 40, TG 233, alb 3.0

Medications: glyburide 5 mg/metformin 500 mg 2 tablets twice a day, fosinopril 10 mg daily, baby aspirin, lovastatin 20 mg daily in the evening, ranitidine 150 mg twice a day.

Recall

2 medium yeast donuts (550 cal, 24 g fat, 404 mg Na, 64 g carb, 8 g pro)	2 ounce bag of potato chips (307 cal, 21 g fat, 272 mg Na, 29 g carb, 4 g pro)	4 sl. meat lovers pizza -reg crust (1,920 cal, 112 g fat, 4,720 mg Na, 148 g carb, 80 g pro)
At least three 32 oz. bottles sports drink – sips all day (475 cal, 0 g fat, 713 mg Na, 118 g carb, 0 g pro)		3 beers (460 cal, 0 g fat, 38 g carb, 5 g pro)

Review of Pertinent Measures from Health Record

Measure	Aug. 2012	June 2012	Jan. 2012	Jan. 2011
Weight (lb.)	241	246	233	236
Blood Pressure	140/83	130/92	158/87	143/95
Hemoglobin A1C	10.4	10.0	12.0	9.6
UACR	3,894		2,678	

Questions

1. What is the key finding indicating Mr. Blake has chronic kidney disease?

Use NKDEP's *How well are your kidney working? Explaining your kidney test results*:

<http://www.nkdep.nih.gov/resources/explaining-kidney-test-results-508.pdf>

2. Which best describes the clinical significance of elevated urine albumin excretion, as measured by the urine albumin-to-creatinine ratio (UACR)?

- a. Elevated urine albumin excretion is associated with increased mortality and may be associated with more rapid progression to kidney failure.
- b. Elevated urine albumin excretion is always associated with low estimated glomerular filtration rates.
- c. Elevated urine albumin excretion is associated with inadequate dietary protein intake.
- d. Elevated urine albumin excretion is associated with improved kidney function.

Use NKDEP's *Quick Reference on UACR and GFR*:

<http://www.nkdep.nih.gov/resources/quick-reference-uacr-gfr-508.pdf>

3. List interventions that may lower urine albumin levels.

4. What is the priority nutrition intervention to slow progression of kidney disease for Mr. Blake?

5. List at least 3 diet changes to recommend to him.

Use NKDEP's *Eating Right for Kidney Health*: <http://nkdep.nih.gov/resources/eating-right-508.pdf>

6. Per his report, he does not adhere to his medication regimen. Which of the prescribed medications is considered reno-protective? Describe the benefit of this medication for Mr. Blake.

Wrap Up

Based on the explanation of urine albumin, he is worried about his kidneys and now more aware of the importance of controlling blood pressure, smoking, medications and diet. He still hasn't accepted the diagnosis of diabetes. He is not interested in monitoring blood glucose levels. He plans to read Nutrition Facts to find snacks that are lower in sodium and fat, and he plans to take all of his medications more consistently. He is not ready to quit smoking. He will make a dental appointment.

7. Write the note for documenting the visit

A.	
D.	
I.	
M&E	

Follow Up with Mr. Blake

Mr. Blake returns for his 2-month follow-up appointment. He reports he uses Nutrition Facts labels to choose foods with less sodium. He still has trouble taking medications consistently, but he takes them more often. His doctor told him his blood pressure, A1C, and weight are lower. He denies low blood sugars, and reports he now sleeps through the night and has more energy. He is thinking about quitting smoking. His dentist removed the loose tooth and he reports no mouth pain.

His co-worker is losing weight by eating a high protein diet and he wants to know if this would help him lose weight.

Review of Pertinent Measures from Health Record

Measure	Oct. 2012	Aug. 2012
Weight (lb.)	230	241
Blood pressure	130/78	140/88
Hemoglobin A1C	9.4	10.4
UACR	2,333	3,894

Current labs: Creatinine 1.1, eGFR > 60, K 4.4, HCO₃ 26.0, BUN 18, Ca 9.3, phos 3.9, alb 3.5, hemoglobin 16.0

Previous labs: Creatinine 1.2, eGFR > 60, K 4.2, HCO₃ 25.7, BUN 19, Ca 9.2, Phos 4.0, alb 3.0, LDL 72, HDL 40, TG 233

Annual lipid panel and UACR are scheduled for next visit. No data are available for iPTH or Vitamin D.

Additional Questions

8. Use NKDEP's *Your Kidney Test Results* (<http://nkdep.nih.gov/resources/kidney-test-results-508.pdf>) and highlight positive changes in data for Mr. Blake.
9. Briefly explain why a high protein diet is not recommended for someone like Mr. Blake.

Educational Material

National Kidney Disease Education Program. *Urine Albumin-to-Creatinine Ratio (UACR) in evaluating patients with diabetes for kidney disease*. Washington, D.C.: U.S. Government Printing Office; February 2010. NIH Publication No. 10–6286.

<http://www.nkdep.nih.gov/resources/quick-reference-uacr-gfr-508.pdf>

National Kidney Disease Education Program. *How well are your kidneys working? Explaining your kidney test results*. Revised February 2012. NIH publication 12–6220. National Kidney Disease Education Program website.

<http://nkdep.nih.gov/resources/explaining-kidney-test-results-508.pdf>

National Kidney Disease Education Program. *Eating right for kidney health*. Revised September 2011. NIH publication 11–7405. National Kidney Disease Education Program website. <http://nkdep.nih.gov/resources/eating-right-508.pdf>

National Kidney Disease Education Program. *Your kidney test results*. Revised September 2011. NIH Publication No. 11–7407. National Kidney Disease Education Program website. <http://nkdep.nih.gov/resources/kidney-test-results-508.pdf>

Additional Reading

Afshinnia F, Wilt TJ, Duval S, Esmaeili A, Ibrahim HN. Weight loss and proteinuria: systematic review of clinical trials and comparative cohorts. *Nephrology Dialysis Transplantation*. 2010;25(5):1173–1183.

Jones-Burton C, Mishra SI, Fink JC, et al. An in-depth review of the evidence linking dietary salt intake and progression of chronic kidney disease. *American Journal of Nephrology*. 2006;26(3):268–275.

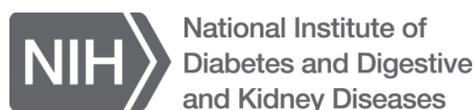
Verhave JC, Hillege HL, Burgerhof JGM, et al. Sodium intake affects urinary albumin excretion especially in overweight subjects. *Journal of Internal Medicine*. 2004;256(4):324–330.

Franz MJ. Medical nutrition therapy for hypertension and albuminuria. *Diabetes Spectrum*. 2006; 19(1):32–38.

Bernstein AM, Treyzon L, Li Z. Are high-protein, vegetable-based diets safe for kidney function? A review of the literature. *Journal of the American Dietetic Association*. 2007;107(4):644–650.

Orth SR, Hallan SI. Smoking: A risk factor for progression of chronic kidney disease and for cardiovascular morbidity and mortality in renal patients—absence of evidence or evidence of absence? *Clinical Journal of the American Society of Nephrology*. 2008;3(1):226-236.

National Institutes of Health National Diabetes Education Program. *Diabetes Medications Supplement Working Together to Manage Diabetes*. Revised 3/07. NDEP– 54–S, 2007. http://ndep.nih.gov/media/Drug_tables_supplement.pdf



For more information, visit www.nkdep.nih.gov/nutrition or call 1-866-4 KIDNEY (1-866-454-3639).

The National Kidney Disease Education Program (NKDEP) works to improve the understanding, detection, and management of kidney disease. NKDEP is a program of the National Institutes of Health (NIH). NKDEP is a program of the National Institutes of Health.

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