

The Case of Millie Jones: Dyslipidemia and CKD

Background

Mrs. Millie Jones is a 79-year-old white woman with 30 year history of type 2 diabetes, hypertension, hyperlipidemia, and chronic kidney disease (CKD). She feels a lot better since the statin was discontinued for muscle aches and pain (myopathy) last September and since then increased her daily walks to 45 minutes a day. No tobacco or alcohol use. Was treated for a urinary tract infection last August.

Physical exam: thin woman, upper dentures. No obvious nutrient deficiencies.

MNT Referral Data

Referred for dyslipidemia. Myopathy with statin, starting ezetimibe 10 milligrams.

Labs: Hemoglobin A1C 6.7, UACR 18.7, creatinine 2.1, eGFR 26, K 4.0, HCO₃ 26.4, BUN 32, Ca 9.2, Phos 4.0, Hgb 12.1, LDL 185, HDL 39, TG 176, iPTH 165, Vit D 72, Alb 4.0

Medications: Losartan 20 milligrams (mg) daily, furosemide 40 mg daily, baby aspirin, ferrous sulfate 325 mg twice a day, levothyroxine 25 micrograms daily, ergocalciferol 50,000 I.U. weekly, calcium carbonate 1000 mg daily.

Recall

½ cup oatmeal 4 oz. 2% milk 1 boiled egg 1 slice white toast ½ tbsp. butter 2 cups black coffee	1 slice deli roast beef (1 ½ oz.) 1 slice American cheese 2 slices wheat bread Lettuce/tomato/onion/mayo Small handful of potato chips 1 can diet lemon lime soda pop	1 baked chicken leg, no skin ½ cup green beans (frozen kind) 1 small baked potato/ 1 tbsp. butter ½ cup canned light peaches 1 cup hot tea with lemon
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Review of Pertinent Measures

Measure	Reference Range	2/4/12	10/10/11	9/29/11	8/28/11	6/16/11
UACR	< 30	18.7	---	---	---	14.2
Glucose	70-100	122 H	201 H	142 H	135 H	128 H
BUN	7-20	32 H	30 H	43 H	77 H	48 H
Creatinine	0.8-1.3	2.1 H	2.3 H	2.6 H	3.5 H	2.4 H
eGFR	> 60	26 L	22 L	19 L	14 L	21 L
Sodium	135-145	139	140	138	142	142
Potassium	3.5-5.0	4.0	3.8	4.2	4.8	5.0
Chloride	101-111	102	104	104	110	106

Review of Pertinent Measures (continued)

Measure	Reference Range	2/4/12	10/10/11	9/29/11	8/28/11	6/16/11
HCO ₃	21-32	26.4	24.9	22.4	17.8 L	24.3
Calcium	8.5-10.2	9.2	8.8	9.0	8.6	9.0
Phosphorus	2.7-4.6	4.0	4.0	4.2	4.8 H	4.4
Albumin	3.4-5.0	4.0	3.8	4.1	3.7	3.6
Cholesterol	< 200	271 H	---	---	---	154
LDL	< 100	185 H	---	---	---	72.8
HDL	> 35	39	---	---	---	36
Triglycerides	< 150	176 H	---	---	---	231 H
25(OH) D	20 or more	72	---	30	---	< 4 L
iPTH	65 or less	165 H		232 H	---	---
Hemoglobin A1C	< 7 %	6.7	5.9	6.0	6.6	5.9

Questions

1. What is your assessment of her kidney function and risk of progression to kidney failure?

Use NKDEP's *How well are your kidneys working? Explaining your kidney test results* (<http://nkdep.nih.gov/resources/explaining-kidney-test-results-508.pdf>) to show eGFR and UACR results and refer to NKDEP's *Quick Reference on UACR and GFR* (<http://www.nkdep.nih.gov/resources/quick-reference-uacr-gfr-508.pdf>).

2. She was referred for dyslipidemia. What are the key findings in the lipid results?

3. List at least 3 dietary changes she could consider to help lower lipids.

4. Briefly explain the role of the kidneys in vitamin D status.

5. Explain the role of parathyroid hormone (PTH) in chronic kidney disease.

6. What are the key findings in her iPTH, vitamin D and serum phosphorus levels?

7. Document the visit.

A.	
D.	
I.	
M&E.	

Follow Up with Mrs. Jones

Mrs. Jones returns for follow-up as planned. She found a soft margarine without hydrogenated oil but uses very little on her foods now. She is now concerned about her blood count results. Last year, her physician told her to take ferrous sulfate 325 milligrams twice a day. The iron supplement causes diarrhea and she needs to stay home when she takes it. She only takes it once a day now. She wants to know if she still needs to take it.

Review of Pertinent Measures

Measure	Reference Range	4/27/12	2/4/12	10/10/11	9/29/11
HGB	12-16	12.6	12.1	11.3 L	11.2 L
HCT	37-47	38.1	38.5	32.1 L	31.4 L
Total iron binding capacity (TIBC)	250-450	364	---	---	300
Serum iron	40-160	66	---	---	60
Transferrin saturation % (TSAT)	15-50 %	18	---	---	17
Serum ferritin	20-288	68	---	---	127

Additional Questions

8. Briefly explain the role of the kidneys in anemia. What does this mean for someone with chronic kidney disease (CKD)?

9. What is the key finding in her blood count results?

10. Briefly describe the major difference between transferrin saturation and ferritin.

11. Which of the following strategies is the best way to address her concern about supplemental iron?

- a. She should continue to take it twice a day, as originally prescribed.
- b. You will discuss her concerns with her physician and get back to her. He may recommend a different iron formulation.
- c. Her anemia is resolved, she can discontinue taking iron.
- d. She should take it on an empty stomach to increase absorption.

Educational Material

National Kidney Disease Education Program. *How well are your kidneys working? Explaining your kidney test results*. Revised February 2012. NIH Publication No.12–6220. National Kidney Disease Education Program website. <http://www.nkdep.nih.gov/resources/explaining-kidney-test-results-508.pdf>

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; 2010. NIH Publication No.10–6286. National Kidney Disease Education Program website. <http://www.nkdep.nih.gov/resources/quick-reference-uacr-gfr-508.pdf>

Additional Reading

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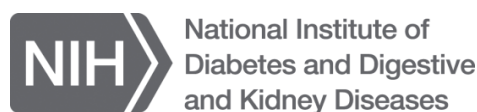
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Kovesdy CP, Estrada W, Ahmadzadeh S, Kalantar-Zadeh K. Association of markers of iron stores with outcomes in patients with nondialysis-dependent chronic kidney disease. *Clinical Journal of the American Society of Nephrology*. 2009; 4(2): 435-441.

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Kovesdy CP. Iron and clinical outcomes in dialysis and non-dialysis dependent chronic kidney disease patients. *Advances in Chronic Kidney Disease*. 2009;16(2):109-116.



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.

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