

A 14-year-old boy comes to the physician with two days of fever and nasal discharge. He has also had malaise, fatigue, and myalgia. He has no other medical problems. Family history is negative for any kidney disease. His temperature is 38.8° C (101.9° F), blood pressure is 122/74 mm Hg, pulse is 95/min, and respirations are 15/min. Examination shows no abnormalities. An incidental urine dipstick testing shows 2+ proteinuria but no hematuria, pyuria, or active urine sediment. Serum creatinine is within normal limits. Which of the following is the most appropriate next step in management?

- ☐ A. Repeat dipstick testing on two subsequent occasions
- ☐ B. Check serum protein and albumin levels
- ☐ C. Order 24-hour urinary collection for protein
- ☐ D. Order renal ultrasound
- ☐ E. Reassure, with no further workup
- ☐ F. Renal biopsy

A 14-year-old boy comes to the physician with two days of fever and nasal discharge. He has also had malaise, fatigue, and myalgia. He has no other medical problems. Family history is negative for any kidney disease. His temperature is 38.8° C (101.9° F), blood pressure is 122/74 mm Hg, pulse is 95/min, and respirations are 15/min. Examination shows no abnormalities. An incidental urine dipstick testing shows 2+ proteinuria but no hematuria, pyuria, or active urine sediment. Serum creatinine is within normal limits. Which of the following is the most appropriate next step in management?

- ☒ A. Repeat dipstick testing on two subsequent occasions [35%]
- ☐ B. Check serum protein and albumin levels [10%]
- ☐ C. Order 24-hour urinary collection for protein [23%]
- ☐ D. Order renal ultrasound [3%]
- ☐ E. Reassure, with no further workup [27%]
- ☐ F. Renal biopsy [2%]

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Explanation:

User Id: 

A urine dipstick can be positive in up to 10% of school-aged children. Proteinuria in children can be transient (intermittent), orthostatic, or persistent. Transient proteinuria is the most common cause of proteinuria and can be caused by fever, exercise, seizures, stress, or volume depletion. Orthostatic proteinuria is very common in adolescent boys and is defined as increased protein when the patient is in an upright position that returns to normal when the patient is recumbent. If the urinalysis shows no hematuria and is otherwise normal, the urine dipstick should be repeated on at least two additional specimens (**Choice A**). If these subsequent tests are negative for protein, the diagnosis is transient proteinuria. Transient and orthostatic proteinurias are usually benign conditions that require no further evaluation.

If the proteinuria persists on the repeat sample or if any of the initial studies are abnormal, the patient should be referred to a pediatric nephrologist and evaluated for underlying renal disease. Further investigation may include 24-hour urinary collection for protein, renal ultrasound, and, possibly, renal biopsy (**Choices C, D, and F**). This patient presents with proteinuria during a febrile illness and should be tested again in the future to rule out persistent proteinuria.

(**Choice B**) Checking serum protein (albumin) has little value in evaluating proteinuria

- ☐ D. Order renal ultrasound [3%]
- ☐ E. Reassure, with no further workup [27%]
- ☐ F. Renal biopsy [2%]

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If the proteinuria persists on the repeat sample or if any of the initial studies are abnormal, the patient should be referred to a pediatric nephrologist and evaluated for underlying renal disease. Further investigation may include 24-hour urinary collection for protein, renal ultrasound, and, possibly, renal biopsy (**Choices C, D, and F**). This patient presents with proteinuria during a febrile illness and should be tested again in the future to rule out persistent proteinuria.

(**Choice B**) Checking serum protein (albumin) has little value in evaluating proteinuria since many patients with even nephrotic-range proteinuria have normal serum protein levels.

Educational objective:

Transient proteinuria is the most common cause of isolated proteinuria in children and should be reevaluated with a repeat urine dipstick testing on two separate occasions to rule out persistent proteinuria, which requires further evaluation for underlying renal disease.

References:

1. [Isolated proteinuria: analysis of a school-age population](#)