<table>
<thead>
<tr>
<th>Podcast Series</th>
<th>Reynolds Geriatrics Series • USMLE Step 2CK Prep</th>
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<tbody>
<tr>
<td>Episode Title &amp; Question Number</td>
<td>“The Song of AAA,” based on Question 78 of the 2010 USMLE sample exam</td>
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<tr>
<td>Personnel</td>
<td>Hosam Attaya, Jessica Baima, Chance Witt</td>
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<tr>
<td>Recording Date</td>
<td>November 17, 2010</td>
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<tr>
<td>Episode Description</td>
<td>Question 78, page 51</td>
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http://download.usmle.org/2010Step2CK.pdf

One day after an emergency repair of a ruptured aortic aneurysm, a 66-year-old man has a urine output of 35 mL over a 4-hour period; a Foley catheter is still in place. He received 14 units of blood during the operation. His temperature is 37.8°C (100°F), pulse is 126/min, and blood pressure is 104/68 mm Hg.

Examination shows diffuse peripheral edema. Heart sounds are normal. The lungs are clear to auscultation. There is no jugular venous distention. The abdomen is soft. Laboratory studies show:

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<tr>
<td>Hematocrit</td>
<td>27%</td>
</tr>
<tr>
<td>Serum Na⁺</td>
<td>143 mEq/L</td>
</tr>
<tr>
<td>Serum K⁺</td>
<td>5.0 mEq/L</td>
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<tr>
<td>Urine Na⁺</td>
<td>6 mEq/L</td>
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Which of the following is the most likely cause of the oliguria?

(A) Heart failure
(B) Hypovolemia
(C) Occluded Foley catheter
(D) Renal artery thrombosis
(E) Transfusion reaction
### Learning Objectives

The listener should be able to:

- Define oliguria
- Identify the clinical consequences of hypovolemia
- Recognize appropriate lab values of different types of renal failure
- Differentiate common post surgical complications

### Key Teaching Points

1. Oliguria is urine output generally below 300-500ml/day. Anuria is failure of the kidneys to produce urine, clinically classified as urine production below 50ml/day.

2. Hypovolemia and renal artery thrombosis can lead to several different bodily responses including activation of the renin-angiotensin-aldosterone system.

3. Pre-renal azotemia values: BUN:Cr 20:1, fractional excretion of sodium of <1% (FeNa is a measure of sodium in the urine compared to sodium in the blood (UNa x PCr) / (UCr x PNa) x100). Urine sodium should be <20, urine osmolality > 500. The kidney is working as hard as possible to retain sodium in order to expand plasma volume.

4. Post-renal azotemia: BUN:Cr 10-15:1, urine Na > 40, FeNa >1, urine osmolality <350. Consequent hydronephrosis and urinary retention causes a reduced renal blood flow causing an increased pressure within the renal collecting system.

### Comments

### References

