<table>
<thead>
<tr>
<th>Podcast Series</th>
<th>Reynolds Geriatrics Series • USMLE Step 1 Prep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Episode Title</td>
<td>Doc, The Kids Are Tiring Me Out!</td>
</tr>
<tr>
<td>Personnel</td>
<td><img src="image" alt="Group 5" /></td>
</tr>
<tr>
<td></td>
<td>Front: Idean Nikrooyan, Clark Kholeif, Sara Moaghddam</td>
</tr>
<tr>
<td></td>
<td>Back: Hai Le, Clayton Adams, Arafat Hashwami, Margaret Brown, Stewart Walther, Jessica Baima, Rupa Patel, Robert Castanos</td>
</tr>
<tr>
<td>Recording Date</td>
<td>May 4, 2009</td>
</tr>
<tr>
<td>USMLE Question Number:</td>
<td>45</td>
</tr>
<tr>
<td>Pg #: 31</td>
<td></td>
</tr>
</tbody>
</table>

45. A 75-year-old man has had increasing shortness of breath with exertion during the past 2 weeks. He has a 25-year history hypertension well controlled with diuretics. Two months ago, serum urea nitrogen and creatinine concentrations were within the reference ranges. His pulse is 98/min, respirations are 19/min, and blood pressure is 180/100 mm Hg. The lungs are dull to percussion at the bases, and crackles are heard one-third of the way up bilaterally. Cardiac examination shows increased jugular venous pressure, an S3 gallop, and no murmur. There is 3+ pitting edema of the lower extremities.

Serum studies show:
- Na+ 126 mEq/L
- K+ 5.4 mEq/L
- Cl− 108 mEq/L
- HCO3− 16 mEq/L
- Urea nitrogen 75 mg/dL
- Creatinine 3 mg/dL

This patient most likely has which of the following types of acid-base disturbance?
- (A) Metabolic acidosis
- (B) Metabolic alkalosis
| Learning Objectives | 1. Define *acidosis* and *alkalosis* and their lab values  
|                     | 2. List the possible causes of renal failure and its consequences  
|                     | 3. Decide which diagnosis is most likely and understand the reason  |
| Key Teaching Points | *Two forms of renal failure*  
|                     | 1. Acute renal failure – often due to acute tubular necrosis  
|                     | 2. Chronic renal failure – due to hypertension and diabetes  
|                     | *S3 heart sound is the first cardiac sign of heart failure*  
|                     | *Consequences of renal failure:*  
|                     | 1. Clinical syndrome marked by increase BUN and creatinine  
|                     | 2. Anemia  
|                     | 3. Renal osteodystrophy (failure of active vitamin D production)  
|                     | 4. Hyperkalemia, which can lead to cardiac arrhythmias  
|                     | 5. Chronic pyelonephritis  
|                     | 6. Metabolic acidosis due to decrease acid secretion and decrease generation of bicarbonate  
|                     | 7. Sodium and water excess – CHF and pulmonary edema  
|                     | 8. Hypertension  
|                     | 9. Pericarditis  |

**USMLE Test source:**  

**References**  