Electrolyte and Acid-Base Practice Questions

University of Southern California Keck School of Medicine

26 total questions: 13 long, 13 short

Financial disclosures


No conflict of interest to disclose.

Item 1
A 35 year-old man with bipolar disorder treated on lithium, is referred to you for chronic polyuria and polydipsia. He complains that he has to void once every hour.

Laboratory studies:
- Serum sodium 146 mEq/L
- Blood urea nitrogen 35 mg/dL
- Serum creatinine 1.9 mg/dL
- Serum osmolality 305 mOsm/kg
- 24-hr urine volume 5 L
- Urine sodium 28 mEq/L
- Urine osmolality 190 mOsm/kg

Which of the following might be appropriate in the management of this patient?
(A) Discontinue lithium
(B) Demeclocycline
(C) Vasopressin V2 receptor antagonist
(D) Fluid restriction
(E) Furosemide

Hypernatremia

< 800 mOsm/kg
- Renal H2O loss
- Osmotic diuresis

> 800 mOsm/kg
- Insensible H2O loss
- GI H2O loss
- Na+ intake

↓ Water intake

Hypernatremia diagram

Item 2
An 85 year-old woman, who lives alone, fell in her bedroom and broke her hip. She was unable to get up and had no access to water. She was found 2 days later and brought into the emergency room. On examination, she is drowsy but responsive. The blood pressure is 103/51 mm Hg, pulse rate 90 per minute, weight 70 kg, mucous membranes are very dry and skin turgor is decreased.

Laboratory studies:
- Serum sodium 164 mEq/L
- Blood urea nitrogen 54 mg/dL
- Serum creatinine 1.2 mg/dL
- Hematocrit 56%
- Urine osmolality 820 mOsm/kg
Item 2
Which of the following statements is FALSE?
A. She has intracellular fluid volume depletion
B. Appropriate initial fluids would be 0.45% NaCl
C. Her serum Na⁺ should be lowered to a target of 152 mEq/L in the next 24 hours
D. Overly rapid correction of her hypernatremia could cause osmotic demyelination syndrome
E. Correction of her hypernatremia could cause cerebral edema

Management of hypernatremia
- Replace free water deficit (50% in first 24 hr, no more than 0.5 mM/hr)
- Replace ongoing free water losses
- Treat underlying cause
  - Desmopressin for CDI
  - No specific Rx for NDI (attempt to reduce urine output with Na restriction, thiazides or give supratherapeutic dose of desmopressin)

Item 3
A 64 year-old woman with coronary artery disease, multiple prior myocardial infarctions and ischemic cardiomyopathy, with a left ventricular ejection fraction of 15%, is admitted with pulmonary edema. Her medications include aspirin, metoprolol, furosemide, spironolactone, digoxin, isosorbide dinitrate, and lisinopril. On examination, the blood pressure is 97/54 mm Hg, pulse rate 85 per minute, jugular venous pressure 9 cm, moist mucous membranes, lungs with diffuse inspiratory crackles, heart with an S3 gallop, and cool, clammy extremities with 1+ peripheral edema.
Serum sodium 128 mEq/L
Serum potassium 3.6 mEq/L
Serum chloride 87 mEq/L
Serum bicarbonate 34 mEq/L
Blood urea nitrogen 46 mg/dL
Serum creatinine 1.2 mg/dL
Arterial pH 7.48

Item 3
Urine electrolytes (6 hrs after last diuretic dose):
Urine sodium 15 mEq/L
Urine chloride < 5 mEq/L
Urine osmolality 220 mOsml/kg

Item 3
All of the following might be appropriate in the management of this patient EXCEPT:
(A) Intravenous 0.9% saline
(B) Restriction of free water intake
(C) Dietary sodium restriction
(D) Dobutamine
(E) Acetazolamide
A 45-year-old male smoker presents with confusion and drowsiness. His only medications are bronchodilator and steroid inhalers. On examination, his BP is 125/86, HR 78, moist mucous membranes, good skin turgor, jugular venous pressure 4 cm, lung fields clear to auscultation, no peripheral edema. Chest radiograph shows emphysematous changes but is otherwise normal.

Laboratory studies:
- Serum sodium: 116 mEq/L
- Serum osmolality: 256 mOsm/kg
- Urine sodium: 85 mEq/L
- Urine potassium: 78 mEq/L
- Urine osmolality: 670 mOsm/kg

Appropriate steps in the management of this patient might include:

(A) Order serum protein and lipid panel
(B) Computed tomography scan of the chest
(C) Psychiatry consult for psychogenic polydipsia
(D) Administer thiazide diuretic
(E) Order echocardiogram

*Correct serum Na⁺ by 1.8 for every 100 mg/dL Δ in glucose
Item 5
All of the following could be contributing to this patient's hyperkalemia EXCEPT:
(A) Enalapril
(B) Decreased glomerular filtration rate
(C) Type 4 renal tubular acidosis
(D) Renal artery stenosis
(E) Excess dietary K intake

Hyperkalemia
↑Intake
Decreased urinary K+ excretion
24 hr urine K+ < 40 mEq
Cell shift
Metabolic acidosis
Hyperglycemia
β-blocker
Digitalis
Hyperkalemic periodic paralysis
Cell lysis

Decreased urinary K+ excretion
↓Tubular flow
↓ECV
Meds
Addison's hypald
Hyporenin hypald
NSAIDs
ACEI/ARB
Spironolactone
Cyclosporine
Amiloride
Trimethoprim
Pentamidine

Type IV RTA (hyporeninemic hypoaldosteronism)
• Hyperkalemia (disproportionate to level of GFR)
• Non-gap metabolic acidosis with normal urine acidifying ability
• Mild CRF
• Often underlying tubulointerstitial disease:
  - DM
  - SLE, obstruction, myeloma/amyloid, HIV etc.
  - NSAIDs

Item 6
A 20 year-old man, with no past medical history and on no medications, presents with a one week history of fatigue, nausea, vomiting, diarrhea and acute abdominal pain. On examination, BP is 80/60, HR 110, temperature 99.8°F. The abdomen was diffusely mildly tender.
Laboratory studies:
- Serum sodium 124 mEq/L
- Serum potassium 6.8 mEq/L
- Serum chloride 101 mEq/L
- Serum bicarbonate 18 mEq/L
- Serum glucose 52 mg/dL
- Blood urea nitrogen 19 mg/dL
- Serum creatinine 1.1 mg/dL
- 24 hr urine potassium 5 mEq/L

Item 6
Which one of the following tests would be most likely to reveal the underlying cause of the hyperkalemia?
(A) Blood digoxin level
(B) Serum creatine kinase
(C) ACTH stimulation test
(D) Blood glycosylated hemoglobin level
(E) Iothalamate GFR test
An 18 year-old female presents with acute muscle weakness. She has had several previous episodes that resolved spontaneously. BP 96/54. Rest of the exam was unremarkable.

Laboratory studies:
- Serum sodium 135 mEq/L
- Serum potassium 2.9 mEq/L
- Serum chloride 99 mEq/L
- Serum bicarbonate 28 mEq/L
- Blood urea nitrogen 8 mg/dL
- Serum creatinine 0.5 mg/dL

24 hr urine K+ < 40 mEq

Item 7
Which one of the following diagnoses are compatible with this clinical picture?
(A) Gitelman’s syndrome
(B) Primary hyperaldosteronism
(C) Surreptitious amiloride use
(D) Surreptitious laxative abuse
(E) Hypokalemic periodic paralysis

DDX of hypokalemia
- Urinary K wasting
- 24 hr U_K > 25 mEq
- GI loss
- Alkalemia
- Insulin
- β-agonist
- Hypokalemic periodic paralysis

*Also renal K* wasting
Cryptogenic hypokalemic metabolic alkalosis

<table>
<thead>
<tr>
<th>Condition</th>
<th>Volume status/BP</th>
<th>Urine Cl-</th>
<th>Urine diuretics</th>
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<tbody>
<tr>
<td>Hyperaldosteronism</td>
<td>↑</td>
<td>&gt; 40 mEq/L</td>
<td>-</td>
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<tr>
<td>Surreptitious vomiting</td>
<td>Nil or ↓</td>
<td>&lt; 25 mEq/L</td>
<td>-</td>
</tr>
<tr>
<td>Diuretic abuse</td>
<td>Nil or ↓</td>
<td>&gt; 40 mEq/L</td>
<td>+</td>
</tr>
<tr>
<td>Bartter/Gitelman syndrome</td>
<td>Nil or ↓</td>
<td>&gt; 40 mEq/L</td>
<td>-</td>
</tr>
</tbody>
</table>

Item 8
Which of the following tests would be the most appropriate next step?
(A) Computed tomography scan of the adrenal glands
(B) Dexamethasone suppression test
(C) Urine diuretic screen
(D) Doppler ultrasound of the renal arteries
(E) Fecal laxative screen

A 74 year-old woman diagnosed with hypertension at the age of 40 presents with worsening blood pressure control over the past 3 years. She is now on amlodipine, lisinopril, hydrochlorothiazide, atenolol and clonidine. Her current BP is 156/78.

Laboratory studies:
- Serum sodium 136 mEq/L
- Serum potassium 3.0 mEq/L
- Serum chloride 101 mEq/L
- Serum bicarbonate 26 mEq/L
- Blood urea nitrogen 18 mg/dL
- Serum creatinine 2.0 mg/dL
- Plasma renin activity 8.5 ng/mL/hr (Normal range 1-6)
- Plasma aldosterone 24 ng/dl (Normal range 5-20)

Item 9
A 28 year-old man is found unconscious in the street and brought into the emergency room. No medical history is available. His blood pressure is 120/75 mm Hg, respiratory rate 12 per minute. He appears dishevelled and is comatose and responsive only to pain. His pupils are reactive to light and he has a non-focal neurological examination. No fetor is noted. He is intubated, undergoes gastric lavage, and activated charcoal is administered via a nasogastric tube.

Laboratory studies:
- Serum sodium 132 mEq/L
- Serum potassium 3.5 mEq/L
- Serum chloride 98 mEq/L
- Serum bicarbonate 10 mEq/L
- Blood urea nitrogen 32 mg/dL
- Serum creatinine 1.6 mg/dL
- Serum glucose 75 mg/dL
- Serum ethanol None detected
- Acetest Negative
- Serum β-hydroxybutyrate Negative
- Serum lactate < 1 mmol/L
- Serum salicylate None detected
- Serum creatine kinase 10 mU/mL
- Serum osmolality 308 mOs/m/kg

Arterial blood studies on room air:
- pH 7.22
- PCO₂ 24 mm Hg
The most appropriate next step in the management of this patient is:
(A) Dopamine
(B) Hemodialysis
(C) Forced alkaline diuresis
(D) Thiamine
(E) Fomepizole

pH 7.22, PCO₂ 24 mm Hg, HCO₃⁻ 10 mEq/L
Primary metabolic acidosis

Predicted PCO₂ from Winter's formula = (1.5 x 10) + 8 = 23
Respiratory compensation is appropriate

Na 132 mEq/L, Cl 98 mEq/L
Anion gap = 132 - 98 - 10 = 24 (normal 8-12)
Anion gap metabolic acidosis

ΔAG = 24 - 10 = 14
ΔHCO₃⁻ = 24 - 10 = 14
Δ/Δ = 14/14 = 1
Pure anion gap metabolic acidosis

Serum osmolal gap

Osmolal gap = Measured S_{osm} - Calc S_{osm}

Calculated S_{osm}:
2 [Na⁺] + [glucose]/18 + [BUN]/2.8

(2 x 132) + (75/18) + (32/2.8) = 280
Osmolal gap = 308 - 280 = 28 (normal < 10)

Anion and osmolar gap in diagnosis of intoxications

<table>
<thead>
<tr>
<th>Anion gap acidosis</th>
<th>Osmolal gap</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Normal</td>
<td>Salicylates</td>
</tr>
<tr>
<td>+</td>
<td>High</td>
<td>Ethanol</td>
</tr>
<tr>
<td>-</td>
<td>High</td>
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</tr>
<tr>
<td></td>
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<td>Propylene glycol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Methanol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Isopropanol</td>
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</tbody>
</table>

An 18 year-old female is brought in with change in mental status and suspected toxic ingestion. Her blood pressure is 100/73 mm Hg, pulse rate 89, respiratory rate 40, temperature 100.5°C. She vomited once in the emergency room and is poorly responsive.

Laboratory studies:
- Serum sodium: 142 mEq/L
- Serum potassium: 3.6 mEq/L
- Serum chloride: 102 mEq/L
- Serum bicarbonate: 16 mEq/L
- Blood urea nitrogen: 21 mg/dL
- Serum creatinine: 1.8 mg/dL
- Serum glucose: 62 mg/dL

Acetest Negative
Serum lactate: 1.8 mmol/L
Serum osmolality: 295 mOsm/kg

Arterial blood studies on room air:
pH 7.39
PCO₂ 25 mm Hg
**Item 10**

Which of the following treatments would be most likely to be effective in the management of this patient?

(A) Breathe into a bag  
(B) Insulin drip  
(C) Forced alkaline diuresis  
(D) 5% dextrose  
(E) Fomepizole

**Item 10**

pH 7.39, PCO₂ 25 mm Hg, HCO₃ 16 mEq/L  
Primary metabolic acidosis, & probably respiratory alkalosis  
Predicted PCO₂ from Winter's formula = (1. 5 x 16) + 8 = 32  
Concomitant respiratory alkalosis  
Na 142 mEq/L, Cl 102 mEq/L  
Anion gap = 142 - 102 - 16 = 24 (normal 8-12)  
Anion gap metabolic acidosis  
\[ \Delta AG = 24 - 10 = 14 \]  
\[ \Delta HCO₃ = 24 - 16 = 8 \]  
\[ \Delta/\Delta = 14/8 = 1.8 \]  
Superimposed metabolic alkalosis

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**Serum osmolal gap**

\[ \text{Osmolal gap} = \text{Measured } S_{\text{osm}} - \text{Calc } S_{\text{osm}} \]

Calculated \( S_{\text{osm}} \):

\[
(2 \times 142) + \frac{(62/18)}{2.8} = 295 
\]

Osmolal gap = 295 - 295 = 0

**Anion and osmolar gap in diagnosis of intoxications**

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<tbody>
<tr>
<td>+</td>
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<td>+</td>
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<td>High</td>
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**Item 11**

A 35 year-old male with HIV infection is maintained on HAART therapy, with his most recent regimen being lopinavir, ritonavir, tenofovir and lamivudine. He has been doing well, but on a routine clinic visit was found to have abnormal chemistries.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Serum sodium</td>
<td>135 mEq/L</td>
</tr>
<tr>
<td>Serum potassium</td>
<td>2.8 mEq/L</td>
</tr>
<tr>
<td>Serum chloride</td>
<td>109 mEq/L</td>
</tr>
<tr>
<td>Serum bicarbonate</td>
<td>18 mEq/L</td>
</tr>
<tr>
<td>Blood urea nitrogen</td>
<td>13 mg/dL</td>
</tr>
<tr>
<td>Serum creatinine</td>
<td>1.7 mg/dL</td>
</tr>
<tr>
<td>Serum glucose</td>
<td>91 mg/dL</td>
</tr>
<tr>
<td>Serum calcium</td>
<td>8.8 mg/dL</td>
</tr>
<tr>
<td>Serum phosphate</td>
<td>1.8 mg/dL</td>
</tr>
<tr>
<td>Blood creatinine</td>
<td>1.015</td>
</tr>
<tr>
<td>Urinalysis: Specific gravity 1.015, pH 6, trace protein, 3+ glucose, no blood, leukocyte esterase negative</td>
<td></td>
</tr>
</tbody>
</table>

**Item 11**

Which of the following would be the most appropriate next step in the management of this patient?

(A) Stool microbiology and colonoscopy  
(B) Discontinue tenofovir  
(C) Discontinue lopinavir  
(D) Send autoantibody panel  
(E) Magnetic resonance imaging of the adrenal glands
Item 11
HCO₃ 18 mEq/L, no ABG
Probable metabolic acidosis

Na 135 mEq/L, Cl 109 mEq/L
Anion gap = 135 - 109 - 18 = 8 (normal 8-12)
Non-gap metabolic acidosis

Urine pH 6 is inappropriately high
Renal tubular acidosis, Type I or II

Hypokalemia, hypophosphatemia, glycosuria with normoglycemia
Fanconi syndrome, most likely with Type II (proximal) RTA

Item 12
A 47 year-old female with known peptic ulcer disease presents with a 3 day history of epigastric pain, profuse vomiting and inability to tolerate oral fluids. On examination, she is in moderate pain. Blood pressure is 88/42, pulse rate 97, and mucous membranes are dry.

Serum sodium 124 mEq/L
Serum potassium 3.0 mEq/L
Serum chloride 65 mEq/L
Serum bicarbonate 40 mEq/L
Blood urea nitrogen 56 mg/dL
Serum creatinine 2.1 mg/dL
Serum lactate 8.3 mmol/L
Arterial blood studies on room air:
pH 7.65  PCO₂ 38 mm Hg

Which of the following best describes the acid-base disorder in this patient?
(A) Metabolic alkalosis and respiratory acidosis
(B) Metabolic alkalosis and respiratory alkalosis
(C) Metabolic acidosis, respiratory acidosis and respiratory alkalosis
(D) Metabolic acidosis, metabolic alkalosis and respiratory alkalosis
(E) None of the above

Item 12
pH 7.65, PCO₂ 38 mm Hg, HCO₃ 40 mEq/L
Metabolic alkalosis
Lack of respiratory compensation indicates respiratory alkalosis

Na 124 mEq/L, Cl 65 mEq/L
Anion gap = 124 - 65 - 40 = 19 (normal 8-12)
Lactate level = 8.3 mmol/L
Superimposed anion gap metabolic acidosis (lactic acidosis)

Item 13
A 22 year-old female presents with fatigue and generalized muscle weakness. Blood pressure is 92/65, pulse rate 62, weight 60 kg, height 5 ft 9 in.

Laboratory studies:
Serum sodium 136 mEq/L
Serum potassium 3.3 mEq/L
Serum chloride 98 mEq/L
Serum bicarbonate 32 mEq/L
Blood urea nitrogen 12 mg/dL
Serum creatinine 0.6 mg/dL

24 hr urine studies:
Sodium 15 mEq/L
Potassium 36 mEq/L
Chloride < 5 mEq/L

Arterial blood studies on room air:
pH 7.46  PCO₂ 47 mm Hg

What is the likely cause of this patient’s acid-base disturbance?
(A) Surreptitious vomiting
(B) Laxative abuse
(C) Thiazide diuretic abuse
(D) Gitelman’s syndrome
(E) Hepatic encephalopathy
Item 13
pH 7.46, PCO₂ 47 mm Hg, HCO₃ 32 mEq/L
Metabolic alkalosis
Respiratory compensation is present

Induction of metabolic alkalosis
- Ingestion of alkali
- Loss of acid
- Cellular shift
  - GI loss
  - Blood Tx
  - Vomiting
  - NG suction
- Antacids
- Diuretics
- Bartter/Gitelman
- Hyperaldosteronism

Cropgenic hypokalemic metabolic alkalosis

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Item 14
22 year-old male with no past medical history presents with confusion. His serum sodium is 106 mEq/L, serum osmolality 240 mOsm/kg, urine sodium 45 mEq/L and urine osmolality 40 mOsm/kg.
Select the best option (A-E) for treatment of the serum sodium.
(A) 0.9% NaCl
(B) 3% NaCl
(C) Free water restriction
(D) Hydrocortisone
(E) No treatment

Item 15
52 year-old female with chronic obstructive pulmonary disease and 2 month history of worsening dyspnea presents with a seizure. On examination she appears confused. BP 125/90, HR 74, mucous membranes moist, no peripheral edema. Her serum sodium is 110 mEq/L, serum osmolality 251 mOsm/kg, urine sodium 150 mEq/L and urine osmolality 710 mOsm/kg.
Select the best option (A-E) for treatment of the serum sodium.
(A) 0.9% NaCl
(B) 3% NaCl
(C) Free water restriction
(D) Hydrocortisone
(E) No treatment

Item 16
67 year-old male with fatigue and low back pain. Serum values were: sodium 124 mEq/L, glucose 76 mg/dL, total protein 13 g/dL, albumin 3.6 g/dL, hemoglobin 9 g/dL.
Select the best option (A-E) for treatment of the serum sodium.
(A) 0.9% NaCl
(B) 3% NaCl
(C) Free water restriction
(D) Hydrocortisone
(E) No treatment
Item 17
45 year-old male with diabetes mellitus, hypertension and ischemic cardiomyopathy maintained on aspirin, carvedilol, captopril, glipizide and furosemide. On examination, BP is 135/94, HR 80, mucous membranes moist, jugular venous pulsations are visible to the angle of the jaw, and there is 3+ pitting edema of the legs and thighs. His serum sodium is 123 mEq/L, urine sodium 10 mEq/L and urine osmolality 570 mOsm/kg.
Select the best option (A-E) for treatment of the serum sodium.
(A) 0.9% NaCl
(B) 3% NaCl
(C) Free water restriction
(D) Hydrocortisone
(E) No treatment

Item 18
43 year-old man with Type II diabetes mellitus, hypertension, congestive cardiac failure, nephrotic-range proteinuria, peripheral edema and a serum creatinine of 1.6 mg/dl. His serum potassium has been in the range of 5.3-5.6 mEq/L since starting captopril, despite adhering to a potassium-restricted diet.
Select the best option (A-E) for treatment of the serum potassium.
(A) Thiazide diuretic
(B) Hydrocortisone
(C) Insulin
(D) Hemodialysis
(E) Sodium polystyrene sulfonate

Item 19
88 year-old woman who had partial sigmoid colectomy for perforated diverticular abscess and septicemia two days previously, and has been anuric since the operation. Her serum potassium is 6.5 mg/dL but there are no electrocardiographic changes.
Select the best option (A-E) for treatment of their serum potassium.
(A) Thiazide diuretic
(B) Hydrocortisone
(C) Insulin
(D) Hemodialysis
(E) Sodium polystyrene sulfonate

Item 20
18-year-old man with no prior medical history who presents with one week of polyuria and polydipsia.
Labs:
Na 132, K 5.9, Cl 91, HCO3 16, BUN 56, Cr 2.2, glucose 330
Select the best option (A-E) for treatment of their serum potassium.
(A) Thiazide diuretic
(B) Hydrocortisone
(C) Insulin
(D) Hemodialysis
(E) Sodium polystyrene sulfonate

Item 21
26-year-old woman with acquired immune deficiency syndrome, fatigue, weight loss, low-grade fever, and orthostatic hypotension.
Serum cortisol level:
Baseline at 8 a.m. 7 µg/dL (nl 5-24 µg/dL)
30 minutes after 250 µg cosyntropin i.m. 10 µg/dL
60 minutes after 250 µg cosyntropin i.m. 11 µg/dL
Select the best option (A-E) for treatment of their serum potassium.
(A) Thiazide diuretic
(B) Hydrocortisone
(C) Insulin
(D) Hemodialysis
(E) Sodium polystyrene sulfonate

Item 22
For the following cases of hypokalemic metabolic alkalosis, select the most likely cause (A-E):
16-year-old girl with amenorrhea, body mass index of 13, and a urine chloride concentration of 5 mEq/L.
(A) Diuretic use
(B) Surreptitious vomiting
(C) Hypokalemic periodic paralysis
(D) Gitelman’s syndrome
(E) Conn’s syndrome
Item 23
For the following cases of hypokalemic metabolic alkalosis, select the most likely cause (A-E):

35-year-old man presenting for the first time with new-onset hypertension.

(A) Diuretic use
(B) Surreptitious vomiting
(C) Hypokalemic periodic paralysis
(D) Gitelman’s syndrome
(E) Conn’s syndrome

Item 24
For the following cases of hypokalemic metabolic alkalosis, select the most likely cause (A-E):

32-year-old woman with a history of bulimia. Random urine chloride concentrations on three separate clinic visits were 40, 67 and 26 mEq/L.

(A) Diuretic use
(B) Surreptitious vomiting
(C) Hypokalemic periodic paralysis
(D) Gitelman’s syndrome
(E) Conn’s syndrome

Item 25
For the following cases of hypokalemic metabolic alkalosis, select the most likely cause (A-E):

15-year-old girl with recurrent episodes of muscle weakness since childhood and a urine chloride concentration is 65 mEq/L and 24 hour urine K⁺ is 60 mEq. Her brother has had similar symptoms.

(A) Diuretic use
(B) Surreptitious vomiting
(C) Hypokalemic periodic paralysis
(D) Gitelman’s syndrome
(E) Conn’s syndrome

Item 26
For the following cases of hypokalemia, select the most likely cause (A-E):

20-year-old man with thyrotoxicosis and recurrent episodes of muscle weakness after meals.

(A) Diuretic use
(B) Surreptitious vomiting
(C) Hypokalemic periodic paralysis
(D) Gitelman’s syndrome
(E) Conn’s syndrome

Suggested reading

Financial disclosures

No conflict of interest to disclose.