

## CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

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### Acid-Base Balance-Electrolytes Quiz – Case 6

A 62 years old patient developed an acute increase of  $PCO_2$  (80 mmHg). Arterial pH was 7.02 and  $HCO_3^-$  concentration was 20 mEq/L.

Which is the patient's acid-base disorder?

- a) Acute respiratory acidosis
- b) Acute respiratory acidosis plus metabolic acidosis
- c) Acute respiratory acidosis plus metabolic alkalosis
- d) Acute respiratory acidosis plus respiratory alkalosis

#### Comment

*In patients with acute respiratory acidosis the  $HCO_3^-$  concentration should rise 1 mEq/L for each 10 mmHg increase in  $PCO_2$ . Thus,*

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*in this case the elevation of the  $PCO_2$  to 80 mmHg should increase the serum  $HCO_3^-$  concentration to 28 mmHg.*

*Therefore, the findings in this patient represent a combined respiratory and metabolic acidosis, a life-threatening combination not infrequently seen in acute pulmonary edema, in which lactic acidosis is superimposed upon the pulmonary dysfunction.*

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*Diagnosis: Acute respiratory acidosis plus metabolic acidosis*