

Keyword: Causes: Metabolic Alaklosis

**Metabolic alkalosis** = high serum bicarbonate → patients will hypoventilate to compensate trying to ↑PCO<sub>2</sub> even to the point of hypoxia

Etiologies of metabolic alkalosis: can be classified in Chloride responsive/resistant or associated with low/high urine chloride

Chloride responsive	Chloride resistant
<p><b>Renal H<sup>+</sup> loss</b> – diuretic therapy, posthypercapnia, penicillin, ampicillin, carbenicillin therapy</p> <p><b>GI H<sup>+</sup> losses</b> – vomiting, NG suction, villous adenoma, congenital chloridorrhea, watery diarrhea hypokalemia achlorhydria syndrome (VIPoma, pancreatic cholera)</p> <p><b>Alkali administration</b> – bicarbonate, citrate in blood products, acetate in TPN, non-absorbable alkali (MgOH)<sub>2</sub>, Al(OH)<sub>3</sub>, and exchange resins</p>	<p><b>Increase mineralocorticoid activity</b> – primary aldosteronism, Cushing’s, drugs with mineralocorticoid activity</p> <p><b>Profound hypokalemia</b></p> <p><b>Refeeding</b></p> <p><b>Bartter’s syndrome</b></p> <p><b>Parathyroid disease</b></p> <p><b>Hypercalcemia</b></p>

Associated low urinary chloride	Associated with high urinary chloride
<p><b>Vomiting</b></p> <p><b>Volume contraction</b></p> <p><b>NG suction</b></p>	<p><b>Mineralocorticoid excess</b></p> <p><b>Exogenous NaHCO<sub>3</sub> therapy</b></p> <p><b>Corticosteroid abuse</b></p>

Most common causes of metabolic alkalosis in the ICU – vomiting, NG suction, diuretics, corticosteroids, overventilation with chronically increased HCO<sub>3</sub> levels

Question:

The following cause of metabolic alkalosis is usually associated with high urine chloride level:

- a. Cushing’s syndrome
- b. Exogenous NaHCO<sub>3</sub> therapy
- c. Corticosteroid abuse
- d. Vomiting

Answer: D – see keyword table