

Hypochloraemia

$\text{Cl}^- < 95 \text{ mmol/l}$ is defined as **hypochloremia**.

Pathogenesis

Hypochloraemia is not always just an expression of chlorine deficiency, ie it can be the result of dilution. The most common causes of hypochloraemia in intensive care are body fluid dilution (hyperhydration, congestive heart failure) and prolonged vomiting or aspiration of gastric contents. Hypochloraemia develops, followed by hypochloraemic metabolic alkalosis (MAL), which stimulates kidneys to increase potassium secretion. The result is dehydration with hypochloraemic MAL and hypokalemia. In contrast, diarrhea leads primarily to the loss of water, sodium, potassium and bicarbonates, followed by dehydration and hyperchloremic metabolic acidosis (MAC).

Because electroneutrality adjustments in ABB disorders require reciprocal chlorine changes in bicarbonate changes, chloride administration is necessary to correct most cases of MAL, whether or not accompanied by potassium deficiency. Administration of KCl or NaCl leads to rapid excretion of bicarbonates in the urine and treatment of alkalosis.

Etiology

Insufficient chlorine intake.
Excessive losses

- renal;
- extrarenal: GIT, skin.

Some endocrine disorders

- diabetes mellitus;
- m. Addison.

Indoor environmental disorders (MAL)

- congenital chloridorrhea;
- Bartter's syndrome;
- therapy diuretics;
- cystic fibrosis.

Clinical picture

Chloride ion deficiency has no clinical manifestations of its own.

Diagnostics

When changing the concentration of sodium and potassium, we must look for changes in the concentration of chlorides. Sometimes it is difficult to decide whether the change in serum chloride concentration is due to changes in sodium concentration during dehydration or as a result of the primary acid-base imbalance. The determination of so-called *corrected chloride* can help. The formula for calculating this value is as follows:

$\text{Cl}^- \text{ corrected} = \text{Cl}^- \text{ measured} \times (\text{Na}^+ \text{ reference} / \text{Na}^+ \text{ measured})$

This value is in the range of 104 to 108 mmol/l.

A useful indicator is also the Na/Cl ratio in serum, which does not change or decrease in primary Na disorders, whereas the Na/Cl ratio increases in primary Cl loss.

Hypochloraemia therapy

We emphasize the elimination of the primary cause, usually 1/1 saline is sufficient.

Links

Related Articles

- Hyperchloremia

Source

- HAVRÁNEK, Jiří: *Dysbalance chloru*. (upraveno)