Modern Aspects of Gastrointestinal Bleeding in Patients on ALV

Urokov Sh.T Bukhara State Medical Institute. Navoi branch of the republican scientific center for emergency medical care.

Djuraev I.B Bukhara State Medical Institute. Navoi branch of the republican scientific center for emergency medical care.

Babanazarov U.T Bukhara State Medical Institute. Navoi branch of the republican scientific center for emergency medical care.

ABSTRACT

Artificial lung ventilation (ALV) is absolutely and firmly within the practice of intensive care. Effective treatment of seriously ill patients is possible only if sufficient oxygenation is maintained, which can often only be achieved with adequate ventilation. In intensive care units, 2/3 of patients are maintained on mechanical ventilation, which develop various metabolic changes. This article will consider aspects of changes in the structures of the gastrointestinal tract, which are on long-term maintenance of adequate mechanical ventilation.

Keywords: Adequate mechanical ventilation, ulcerative bleeding, Glasgow scale, erosive gastritis.

Introduction.

Treatment and intensive care of patients on mechanical ventilation is a process that requires from medical personnel not only a significant investment of time and physical strength, but also versatile experience. It is considered a non-random rule that in the ICU each such patient should be assigned an individual round-the-clock medical employee who should not be distracted to provide planned medical care to other patients of the department. All patients in the intensive care unit (ICU) who are on mechanical ventilation need nutritional support provided enterally and parenterally [1]. In patients on adequate oxygenation, morphological and histological changes occur to one degree or another. Artificial ventilation of the lungs affects the function of the lungs themselves, kidneys, liver and gastrointestinal tract.

There is a complex dynamic interaction between mechanical ventilation and the visceral vasculature that contributes to the many gastrointestinal complications that occur during critical illness.

There is evidence that the hyperventilation mode of mechanical ventilation disrupts microcirculation, causes a shift in the oxyhemoglobin dissociation curve to the left, which leads to tissue hypoxia of parenchymal organs, which in turn is a trigger factor for bleeding [2]. According to the literature, in the acute period in the early stages there is a narrowing of the intestinal lumen, after which its paresis occurs, most pronounced in the small intestine [3].

The occurrence of paresis is due to changes in the autonomic nerve plexuses. In turn, this prevents the normal conduct of enteral nutrition and leads to the development

of intestinal failure [3]. The resulting damage to the intestinal mucosa leads to disruption of adsorption processes in the brush border, a sharp decrease in the absorption area, inhibition of parietal digestion processes and, ultimately, to the formation of ulcers and bleeding. In response to a critical condition, changes in the enzymatic activity of the intestine are also observed.

Acute respiratory failure requiring mechanical ventilation for more than 48 hours is one of the two strongest independent risk factors for clinically significant gastrointestinal bleeding in the intensive care unit [4].

Target. To identify the frequency of manifestations of bleeding from the gastrointestinal tract against the background of adequate mechanical ventilation.

Materials and methods. For the period of 2021-2023, 75 patients were analyzed in the Republican Scientific Center for Medical Emergencies in Bukhara and Navoi regions who had bleeding from the gastrointestinal tract against the background of adequate mechanical ventilation. Of these, 43 men (57.3) and 32 women (42.7). The age of the patients varied from 41±3.2 and 53±2.3, respectively. According to the Glasgow scale, more than 13 points in 24 (32) patients, less than 12 points in 18 (24) patients, in 18 (24) patients, the points were 9, and in 15 (20) of the remaining patients, less than 8 points. Bleeding from the upper sections of the GI tract was 50 (67) out of the total, from the lower sections in 25 (37) patients. In 15 (20) patients, bleeding from the mucous membrane was associated with stress.

Bleeding manifested as lesions ranging from subepithelial petechiae in 8 (10) to superficial erosions, i.e. erosive gastritis (Fig. 1), in 12 (16) patients. These lesions are usually multiple and occur predominantly in the fundus of the stomach, usually without affecting the antrum. The mucosa distal to the fundus (antrum (Fig. 2) and duodenum) is also affected, although these phenomena usually appear later and tend to be deeper. Mortality from bleeding out of the total number was 28 patients (37.3).

Figure 1. Patient K.Kh. 51 years old. Picture of erosive gastritis

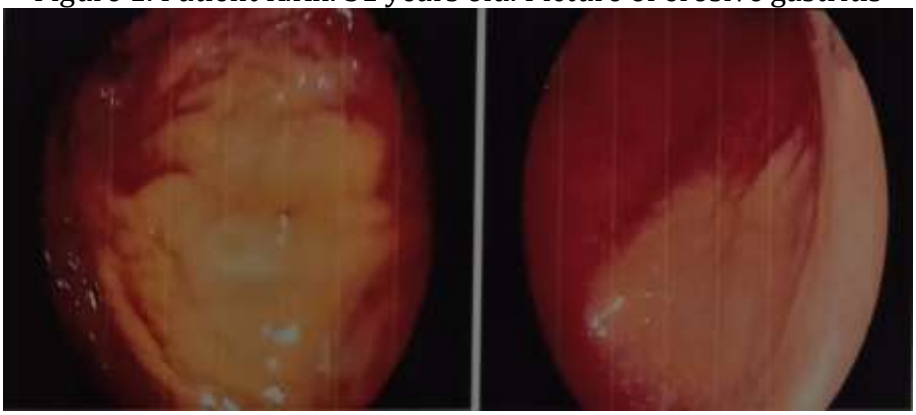

Figure 1. Patient N.I. 48 years old. Picture of erosive antral gastritis

Results and discussions. Prolonged restriction of nutritional support causes histological changes in the gastrointestinal mucosa, which once again proves the need to develop

nutritional regimens for patients in the ICU, especially patients on mechanical ventilation, due to the frequent chronicity of the critical condition.

Most critically ill patients are asymptomatic. Clinically significant bleeding is found in 25% of patients not receiving prophylactic therapy. Clinically significant bleeding occurs in less than 5% of patients.

The oxygen content in the vessels that feed the mucosal layer of the gastrointestinal tract is significantly reduced due to pronounced hemodilution due to the absorption of fluid and nutrients from the lumen of the intestinal tube. In the capillary bed of the intestine, the hematocrit can decrease to 10% [6]. A decrease in the parameters of blood circulation in general and local hypoperfusion of the digestive system seem to be the most significant mechanisms of the negative effect of mechanical ventilation on the functional state of the gastrointestinal tract.

Conclusion. Underestimation of the state of the gastrointestinal tract in patients on a ventilator is the cause of worsening clinical outcomes and the development of secondary complications. After a long stay of the patient on the ventilator, there is a decrease in gastrointestinal motility, which is associated with excessive bacterial growth in the intestine.

Clearly, more research is needed to better understand the systemic effects of ventilation on the gastrointestinal tract and to investigate the impact of protective ventilation strategies on gastrointestinal complications.

Internal vessel properties expose ventilated patients to the risk of bleeding and various gastrointestinal complications that may affect outcome in critically ill patients

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