

COMPARATIVE ANALYSIS OF THE EFFECTIVENESS OF ANTISECRETORY DRUGS USED FOR THE PREVENTION OF GASTRODUODENAL BLEEDING IN BURNS

<https://doi.org/10.5281/zenodo.8199287>

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Abstract

Burn injury is a medical problem of modern health care and a social problem of modern society, which is associated with prevalence, high mortality (from 1.9-6.4 to 11-14%), significant rates of temporary labor losses and primary disability [1 , 2,3,4] .

Keywords

H₂-receptor blockers, burns, histamine, antisecretion;

H₂-receptor blockers are competitive histamine antagonists. In Uzbekistan, three drugs are used: cimetidine, ranitidine and famotidine. Their effect is most pronounced in the form of inhibition of the secretion of hydrochloric acid by the parietal cells of the stomach [5,6] . These drugs can significantly block basal secretion. However, the activity of H₂ receptor blockers in relation to stimulated secretion is much lower than that of proton pump inhibitors. Stimulation of H₂ receptors by histamine through adenylate cyclase increases the content of cyclic adenosine monophosphate in the parietal cells of the stomach, which is accompanied by an increase in their secretory activity [7,8,9] . An increase in cyclic adenosine monophosphate also occurs in mast cells, basophils, T-lymphocytes, myocardial cells, and the central nervous system. Unfortunately, 7% of hospitalized patients have adverse reactions when prescribing H₂ receptor blockers: anxiety, disorientation, delirium, hallucinosis. Obviously, in patients, many of whom have some degree of encephalopathy, these side effects are undesirable. The use of H₂ receptor blockers can lead to a negative chrono- and inotropic effect, extrasystole and AV blockade [10,11,12] . Of particular importance is the negative effect of blockers on platelets, since the thrombocytopenia they cause is an additional factor in maintaining coagulopathy [13,14] . In addition, when using H₂ receptor blockers, the phenomenon of "receptor fatigue" (tachyphylaxis effect) develops , which is accompanied by a rapid loss of antisecretory activity by them. This requires an increase in the dose of the drug used, and therefore increases the risk of side effects

[15,16].

Purpose of the study: The aim of this study was to prevent bleeding from acute erosive and ulcerative lesions of the gastrointestinal tract in patients with thermal burns.

Materials and research methods. To achieve the goals and objectives of the study, data were studied on a total of 204 victims with deep burns who were treated at the Samarkand branch of the RRCEM from 2013 to 2019. In the control group, consisting of 101 patients, the objectives of the study were implemented, aimed at studying the frequency of stress ulcers and their complications, studying the morphological changes in the gastric mucosa and the results of surgical treatment based on an analytical observational study of the "case-control" type. At the stage of the study of the main group of patients (103 patients), the tasks of studying the compartment syndrome (against the background of antishock therapy) on the formation of stress ulcers and their complications, comparing the effectiveness of antisecretory drugs, and the impact of various approaches to the surgical treatment of burn wounds were implemented.

Research results. To compare the effectiveness of antisecretory drugs, all patients included in the control group (101) of the study were divided into two groups: those who did not receive PAT (28 patients) and those who received H₂-blockers (73 patients) (Table 1).

Table 1

General characteristics of study groups

Index		I group without PAT	Group II H ₂ blockers	R
Number of victims		28	73	-
Thermal Factor	flame, %	73.4	75.7	0.824
	water, %	21.3	21.3	0.672
	other, %	5.3	3.0	0.431
Age, years		55.7±17.5	53.4±19.2	0.651

table 2

Characteristics of the severity of burn injury in the study groups

Index	I group without PAT	II group H ₂ blockers	P
Total burn area, %	36.6±10.8	36.4±17.9	0.001
Deep burn area, %	18.4±11.9	17.9±16.3	0.127
Damage severity index, c.u.	76.1±42.8	88.4±53.5	0.074

In addition, there was no significant difference in the frequency of detection of

concomitant alcohol intoxication ($p = 0.183$), carbon monoxide poisoning ($p = 0.389$) and inhalation injury ($p = 0.130$). A delay in admission to the hospital for more than 24 hours was equally common in all two study groups ($p = 0.274$), on the basis of which it was concluded that there were no significant differences in the study groups in terms of the severity of comorbidity (Table 3).

Table 3

Characterization of comorbidity and delay in admission

Index	I group without PAT	II group H ₂ block.	P
Alcohol intoxication, % of victims	38.7	28.7	0.183
Carbon monoxide poisoning, % of victims*	61.1	58.9	0.389
Inhalation injury II - III degree, % of victims*	47.8	46.7	0.130
Duration of the prehospital period > 24 hours, %	20.0	19.8	0.274

* - among the victims who received flame burns.

Since the formed groups were comparable in all analyzed parameters, it became possible to compare the incidence of GDC in the study groups. As can be seen from Table 4, the frequency of bleeding among victims who did not receive prophylaxis was 75%, and among those who received H₂-blockers - 15.06%.

Table 4

The frequency of gastroduodenal bleeding in the control groups of the study (n = 101)

Index	I group without PAT	II group H ₂ blockers
Number of victims, abs.	28	73
Number of bleedings, abs.	21	eleven
Bleeding frequency, %	75	15.06

The results obtained allow us to suggest that H₂-blockers are not effective enough in patients with severe thermal injury.

The results obtained are probably due to the peculiarities of the pharmacokinetics of H₂-blockers. They lose their antisecretory activity by the end of the second week of continuous use due to the development of the phenomenon of "fatigue" of the receptors. At the same time, in our study, the average duration of

treatment in the intensive care unit among surviving patients was 11 days, and among the dead - 5 days. That is, antisecretory therapy with H₂-receptor blockers among victims with extensive burns may not be effective enough due to the duration of treatment of such patients and the peculiarities of the metabolism of drugs of this pharmacological group.

Conclusions. Thus, evaluating the results of treatment of groups of patients who received histamine H₂ receptor blockers and received antacids, in both cases, the occurrence of stress ulcers complicated by bleeding was observed from 15.06% to 75%.

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