EROSIVE GASTRIC LESIONS IN SERVICEMEN: RISK, "AGGRESSION" AND "PROTECTION" FACTORS

Kotyk Yu.
Adjunct, Department of Military Therapy, Ukrainian Military Medical Academy (Kyiv, Ukraine)
ORCID ID: 0000-0001-7261-7083
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Abstract
The article analyzes the impact of the most common risk factors for erosive diseases of the stomach in the servicemen. Also the dynamics of indicators of factors of "protection" and "aggression" of the gastric mucosa depending on the treatment regimen of patients was studied.

Keywords: erosive gastritis, risk factors, protection factors, servicemen.

Introduction. Chronic gastritis is a multifactorial disease that is one of the most common diseases of the digestive system. It is believed that one of the main causes of gastritis is H.pylori infection [1]. There are other factors along with this. Stress is a frequent factor in the development of erosive-ulcerative lesions of the gastroduodenal zone [4]. Both emotional overload and physical trauma can be stressful. Examples of the effects of traumatic stress include curling ulcers from common burns [3] and Cushing's ulcers associated with traumatic brain injury. Bile acids and lysolecin, which are get into the stomach with duodenal-gastric reflux, also have a detrimental effect on the gastric mucosa [6]. It should be noted that the cause of erosive changes in the stomach in many cases is the use of certain drugs (NSAIDs, anticoagulants, glucocorticosteroids, bisphosphonates), as well as bad and eating habits [2, 7, 5].

Objective. To study the peculiarities of the influence of certain risk factors and the role of "aggression" and "protection" factors of gastric mucosa in the development of erosive damage to the stomach in the servicemen.

Materials and methods. In the first stage of a study the influence of the most common risk factors (RF) on the occurrence of erosive lesions of the stomach in servicemen was conducted. The study was performed by retrospective analysis of medical histories of 1722 patients treated in therapeutic and surgical clinics of the National Military Medical Clinical Center "MMCG", who underwent esophagastroduodenoscopy (EGDS) for abdominal pain and dyspepsia. The following risk factors were studied - H.pylori infection, non-steroidal anti-inflammatory drugs (NSAIDs), duodenal-gastric reflux (DGR), participation in hostilities, surgical pathology, smoking, excessive consumption of energy drinks.

In the second stage, the indicators of the gastric mucosa "protection" and "aggression" factors were studied - the state of the gastric mucosal barrier was assessed by NANA (Kolb V., Kamynshnikov V., 1976) and fucose (Vydershine G., Kolibaba L., 1977). The processes of free radical oxidation were evaluated by the indicators of TBA reactants (Stalnaya I., Garishvili T., 1977) and antioxidant protection - at the level of superoxidedismutase (SOD) (Mircha H.P., Fredovich J., 1972).

The presence of risk factors influence was calculated using the odds ratio (OR). The difference was assessed using the criterion χ2. Quantitative indicators were evaluated using Student's t-test. The reliability of statistical indicators was taken under the condition p(α)<0.05.

Results. At the first stage of a research the impact of certain risk factors for erosive diseases of the stomach in servicemen has been studied.
H.pylori infection. Among patients (n = 100) of the gastroenterology clinic, in whom endoscopic examination revealed erosive changes in the gastric mucosa, the frequency of H. pylori infection was 82% (82 people). Among patients (n = 120) in whom endoscopic examination revealed erythematous changes of the gastric mucosa, the incidence of H.pylori infection was 57% (68 people). The chances of H. pylori infection in the group with erosive lesions of the gastric mucosa were 3.5 times statistically significantly higher than in the group of erythematous gastropathy (OR=3.5 95%CI 1.86 – 6.51, χ2=17.571, p(α)<0.001).

Nonsteroidal anti-inflammatory drugs. In rheumatological patients (n = 100) NSAIDs were included in the complex therapy, and 80 patients did not receive such drugs. It was found that in the treatment with NSAIDs erosive-ulcerative lesions of the stomach occurred in 51 patients (51%), compared with the group of patients with similar lesions of the gastric mucosa without NSAIDs - 18 patients (23%). Therefore, in patients who receive NSAIDs are 3.4 times higher chances to have erosive-ulcerative complications of the gastric mucosa (OR=3.4, 95%CI 1.86 – 6.9, χ2=15.27, p(α)<0.001).

Duodeno-gastral reflux. According to EGDS, among patients in therapeutic departments with erosive gastropathy (n = 100) in 30 people (30%) were diagnosed with biliary reflux. In the group of patients with erythematous gastropathy (n = 100) DGR was detected in 18 people (18%). Thus, the statistical significance of the relationship between the presence of DGR and the occurrence of erosive changes in the gastric mucosa was detected (OR=1.9; 95%CI 1.01 – 3.79; χ2=3.95, p(α)<0.05).
Participation in hostilities. According to the EGDS, it was found that among 40 patients of the gastroenterology clinic who took part in the fighting, 13 people (26%) were diagnosed with multiple erosive lesions of the stomach. Among patients who did not take part in hostilities (n = 42), the same indicator was 14% (7 people). Thus, a statistically significant higher frequency of multiple erosive lesions of the gastric mucosa in combatants compared with non-combatants (OR = 2.4; 95% CI 1.07 – 5.16; \( \chi^2 = 4.5 \), p(\( \alpha \))<0.05).

Surgical pathology. According to EGDS, among 410 patients with therapeutic profile, erosive gastric lesions were diagnosed in 142 people (35%), and among 410 patients with surgical profile - in 212 people (52%). It was found that the chances of detecting erosive damage of the stomach in patients with surgical pathology are 2 times higher than in patients of therapeutic profile (OR = 2.02; 95% CI 1.57 – 2.68; \( \chi^2 = 24.36 \), p(\( \alpha \))<0.001).

Smoking. The effect of smoking on the occurrence of erosive lesions of the stomach has been studied. Thus, among 50 patients with erosive changes in the gastric mucosa, 42 people (84%) were found to smoke. Among patients with erythematous changes of the gastric mucosa (n = 50), it was found that 33 people (66%) smoked. It is statistically significant that among patients with erosive changes in the stomach were more likely to be smokers (OR = 2.7; 95% CI 1.04 – 7.04; \( \chi^2 = 4.32 \), p(\( \alpha \))<0.05).

Energy drinks. It was found that among patients (n = 60) who according to EGDS had erosive changes in the gastric mucosa, energy drinks (≥3 times a day) were consumed by 42 people (70%). Among patients who had erythematous changes of the gastric mucosa (n = 60), energy drinks (≥3 times a day) were consumed by 31 people (52%). It was established a positive relationship between the consumption of energy drinks and the occurrence of erosive changes in the gastric mucosa (OR = 2.2; 95% CI 1.03 – 4.62; \( \gamma^2 = 4.23 \), p(\( \alpha \))<0.05).

In the second stage of the study, the balance of "aggression" and "protection" factors of gastric mucosa was studied. Researched the changes in laboratory parameters of "aggression" and "protection" factors of the gastric mucosa during the treatment of 40 patients who were treated at NNMCC "MMCG" for chronic erosive gastritis not associated with H. pylori.

1 clinical group of patients (n = 20) received treatment - rabeprazole 20 mg 2 times a day, colloidal bismuth subcitrate 120 mg 4 times a day.

2 clinical group of patients (n = 20) received treatment - omeprazole 20 mg 2 times a day.

The duration of therapy in both groups was 14 days.

Erosion healing, which was confirmed by EGDS 14 days after the start of therapy, was recorded in 17 (85.0%) patients of group I and 12 (60.0%) patients of group II. In the absence of endoscopic healing of erosive defects after 14 days, patients of clinical group II (n = 8) were additionally prescribed cytoprotective therapy with colloidal bismuth subcitrate, and patients of clinical group I (n = 5) continued therapy. The duration of additional therapy was 14 days. The following indicators were subject to evaluation - NANA, fucose, TBA reactants, superoxidedismutase. Laboratory data were evaluated before and after treatment (Table 1).

### Table 1

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Group I (n=20)</th>
<th>Group II (n=20)</th>
<th>Practically healthy (n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NANA, mmol/l</td>
<td>2.88±0.04(^{1,2})</td>
<td>1.94±0.05</td>
<td>2.92±0.03(^{1,2})</td>
</tr>
<tr>
<td>Fucose, mmol/l</td>
<td>0.22±0.03(^{1,2})</td>
<td>0.52±0.05</td>
<td>0.21±0.03(^{1,2})</td>
</tr>
<tr>
<td>TBA reactants, (\mu)mol/l</td>
<td>1.49±0.05(^{1,2})</td>
<td>0.48±0.04</td>
<td>1.49±0.03(^{1,2})</td>
</tr>
<tr>
<td>Superoxidedismutase, CU/ml</td>
<td>2.39±0.15(^{1,2})</td>
<td>3.48±0.06</td>
<td>2.36±0.12(^{1,2})</td>
</tr>
</tbody>
</table>

Notes:
1- significance of the difference with the indicators of practically healthy individuals p (\( \alpha \))<0.05
2- the significance of the difference between the indicators in the group before and after treatment p (\( \alpha \))<0.05

In the group of patients with bismuth-containing treatment regimen, a significant increase (p (\( \alpha \))<0.05) in the concentration of fucose (2.4 times) and superoxidedismutase (1.5 times), and a decrease (p (\( \alpha \))<0.05) in the concentration of NANA (in 1.5 times) and TBA reactants (3.1 times). In the group of patients receiving omeprazole monotherapy, a significant increase (p (\( \alpha \))<0.05) in the concentration of fucose (2.1 times) and superoxide dismutase (1.4 times) and a decrease (p (\( \alpha \))<0.05) in the concentration of NANA (in 1.4 times) and TBA reactants (2.7 times). The dynamics of the gastric mucosa "aggression" and "protection" factors indicators in the group of rabeprazole and bismuth was better, and the levels of NANA, fucose, TBA-reactants, SOD were close to those of almost healthy individuals, which did not happen in the comparison group.

Conclusions. As a result of the analysis of the prevalence of current risk factors for erosive lesions of stomach in servicemen, it was found that a significant role is played by the following risk factors: H. pylori infection (OR = 3.5 95% CI 1.86 - 6.51), NSAID use (OR = 3.4, 95% CI 1.86 - 6.9), duodeno-gastral reflux (OR = 1.9; 95% CI 1.01 - 3.79), excessive consumption of energy drinks (OR = 2.2; 95% CI 1.03 - 4.62), smoking (OR = 2.7; 95% CI 1.04 - 7.04), stress factors - participation in hostilities (OR = 2.4; 95% CI 1.07 - 5.16) and surgical pathology (OR = 2.02; 95% CI 1.57 - 2.68).

Erosive damages of gastric mucosa are accompanied by a decrease in the resistance of the gastric mucosal barrier and increasing the processes of lipid pe-
The use of rabeprazole and colloidal bismuth in the treatment regimens of such patients contributes to the better dynamics of gastric mucosa “protection” factors indicators compared with omeprazole therapy.

Conflict of interest. The authors declare no conflict of interest.

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CHRONIC PELVIC PAIN SYNDROME IN WOMEN

Grachev V.

Doctor of Technological Science, Academician of the Academy of Medical and Technical Science of Russian Federation, professor, CEO Scientific & Industrial company «AVERS», Moscow

Marinkin I.

Doctor of Medical Sciences, Academician of the Academy of Medical and Technical Sciences of the Russian Federation, Professor, Rector of the Novosibirsk State Medical University, Head of the Department of Obstetrics and Gynecology, Novosibirsk

Samoilova A.

Doctor of Medical Sciences, Professor, Head of the Federal Service "Roszdravnadzor" of the Ministry of Health of Russia, Professor of the Department of Obstetrics and Gynecology, Chuvash State University, Moscow

Batyrev V.

Doctor of Technical Sciences, professor, Association of Developers of Collective Security Systems, Moscow

СИНДРОМ ХРОНИЧЕСКОЙ БОЛИ ТАЗА У ЖЕНЩИН

Грачёв В.И.

Доктор технических наук, академик Академии медико-технических наук Российской Федерации, профессор, генеральный директор – главный конструктор «Научно-производственная компания "АВЕРС"», г. Москва

Маринкин И. О.

Доктор медицинских наук, академик Академии медико-технических наук Российской Федерации, профессор, ректор ФГБОУ ВО «Новосибирский государственный медицинский университет», заведующий кафедрой акушерства и гинекологии, г. Новосибирск

Самойлова А.В.

Доктор медицинских наук, профессор, руководитель федеральной службы «Росздравнадзор» Министерства здравоохранения России, профессор кафедры акушерства и гинекологии Чувашского государственного университета, г. Москва

Батырев В.В.

Доктор технических наук, профессор, Ассоциация разработчиков систем коллективной безопасности, г. Москва

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