

CLINICAL STUDY REGARDING THE INFLUENCE OF PROTON PUMP INHIBITORS THERAPY ON THE EVOLUTION OF GASTRIC AND DUODENAL ULCER, ON ELDERLY PATIENTS

CRISTIAN BĂLĂLĂU¹, FLORIAN POPA¹, CAROLINA NEGREI^{2*}

¹*Sf. Pantelimon University Clinic, Faculty of Medicine, „Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania*

²*Toxicology Department, Faculty of Pharmacy, „Carol Davila” University of Medicine and Pharmacy, Traian Vuia 6, sect. 2, 020956, Bucharest, Romania*

**corresponding author: carol_n2002@hotmail.com*

Abstract

Advances in medical treatment for gastric ulcer (GU) and duodenal ulcer (DU) have lead to an increase in the number of cases where surgical interventions implied resection and vagotomy. A classic or laparoscopic approach is required by perforated DU, diagnosis responsible for the high percentage of deaths. In this case it is excluded the conservative treatment with proton pump inhibitors and the eradication of the infection with *Helicobacter pylori* (HP).

Our study presents observations on the treatment of postoperative DU on a group of elderly patients (> 60 years) with associated chronic diseases.

The studied group includes patients hospitalized between 2005 - 2010 in the Department of Surgery, in Sf. Pantelimon, Sf. Ioan, and Colțea Hospitals.

Of 186 emergency presentations, 23 were duodenal ulcer relapse, 126 perforated DU and GU 37 were cases of perforated GU. 15-16% were aged > 60 years, mainly males.

For cases of duodenal ulcer recurrence in the first aggressive manifestation or recurrent duodenal ulcer, treatment was instituted along with the therapeutical association regarding the type of diabetes, hypertension, heart failure, cirrhosis.

For this situation, as for the treatment after surgery we considered national and international guidelines, as the consensus in 1996 in Maastricht "European concept in the management of *Helicobacter pilory* infection" and the 1997 U.S. "American Digestive Health Foundation."

Rezumat

Progresele în tratamentul medical pentru ulcerul gastric (UG) și ulcerul duodenal (UD) au determinat micșorarea numărului de cazuri în care s-a intervenit chirurgical cu rezecții și vagotomii. Abordarea clasică sau laparoscopică este cerută de UD perforat, diagnostic responsabil de procentul ridicat de decese; în acest caz este exclus tratamentul conservator cu inhibitori de pompă de protoni și eradicarea infecției cu *Helicobacter pilory*.

Studiul nostru prezintă observații privind tratamentul UD sau postoperator UD pe un lot de pacienți vârstnici (> 60 ani) cu boli cronice asociate.

Lotul studiat cuprinde pacienți internați între 2005 - 2010 în Clinica de Chirurgie a spitalelor Sf. Pantelimon, Sf. Ioan, Colțea.

Din 186 de prezentări în urgență, 23 erau ulcer duodenal recidivat, 126 UD perforat, 37 UG perforat. 15-16% aveau vârsta > 60 ani, pondere având sexul masculin.

Pentru cazurile de ulcer duodenal la prima manifestare agresivă sau recidivă s-a instituit tratament antiulceros concomitent cu ce vizând asocieri de tipul: diabet zaharat, HTA, insuficiență cardiacă, ciroze.

Și pentru această situație ca și pentru tratamentul postoperator am avut în vedere consensurile naționale și internaționale din 1996 de la Maastricht "Conceptul European în Managementul infecției cu *Helicobacter Pylori*" și din 1997, SUA "American Digestive Health Foundation".

Keywords: proton pump inhibitors (PPIs), gastric and duodenal ulcer, omeprazole.

Introduction

Medical Statistics and Documentation Centre of the Ministry of Health epidemiological data recorded a large number of surgical interventions in GU and DU (64.4 per 100,000 patients) and the costs resulting from here (hospitalization 273.8 to 100,000 inhabitants).

In DU, more frequently than in GU, if the aetiopathogenetic therapeutic approach is properly started, well-monitored, it can be registered a long-term remission, thus avoiding surgical treatment in emergency.

Our study highlights the difficulties of preoperative and postoperative treatment for patients over 60 years, according to the age and intra-operative risks.

Materials and Methods

For the considered target subjects (above 60 years old) from the group of 186 patients, it was observed that ulcers are due to individual predisposing factors such as:

- decreased mucosal duodenal resistance;
- atherosclerotic lesions of vessels supplying the lining of the intestinal tract;
- ischemic heart disease;
- administration non steroid antiinflammatory drugs (NSAIDs) and corticosteroids.

85% of the patients were symptomatic, having painful episodes for 2-6 weeks. 60% of them had a relapse 1-2 years before the present emergency readmission.

From the medical history, objective clinical examination and lab tests, were also identified etiological factors involved for longer periods:

- wrong and persistent eating habits (alcohol, coffee, spices), despite the imminent suffering;

- HP infection;
- chloro-hydro-peptic hyper-secretion;
- other pathological conditions.

The study was conducted in elderly patients with antiulcer drug therapy or laparoscopic surgery and post-operative treatment. There were registered progressive complications in 72% of the cases, favorable evolution on 25% of the patients and 3% deaths.

After radiological endoscopic examination for unperforated ulcers symptomatic medication was initiated to reduce pain, vomiting, the chloro-hydro-peptic hyper-secretion, and to eradicate the infection with HP. The patients received cimetidine as histamine H₂ receptor blocker, in a dose of 400 mg every 12 hours or 800 mg at night, in a single dose.

Pantoprazole is also used in combination, as a proton pump (ATPase H⁺/K⁺) blocker in order to decrease acid production, in a 40 mg single dose, 30 minutes before breakfast.

In order to form a protective film on the surface of ulcerated mucosa and to increase the bicarbonate secretion, it is also used in therapy sucralfate 1 g - 4 times a day.

After 7 days of treatment administered in order to reduce the hyper secretion and the HP infection along with the treatment for associated chronic pathologies, the 25 patients aged over 60 were discharged, 16 with the recommendation to continue the antisecretory treatment for another 21 days.

After five weeks, six patients returned to hospital, symptomatic, at this point becoming mandatory the reassessment of clinical, biological and therapeutic behavior. For three of them it was decided the laparoscopic intervention, and for the other the therapeutic protocol was reviewed. Absolute indications for duodenal ulcer in 9 patients with perforations were triggered by important digestive hemorrhage.

In the case of patients for which it was avoided the surgical treatment it was observed a similar behavior for those treated with lansoprazole compared to those treated with omeprazole, after a week and 4 weeks. The same behavior was observed with pantoprazole *versus* omeprazole. The administration of esomeprazole and lansoprazole was also very well tolerated.

Since some elderly patients had difficulty swallowing there were recommended omeprazole, lansoprazole, esomeprazole in the form of suspensions.

Immediate-release omeprazole (IR-OME) was administered as a 20 mg daily single dose for 4 weeks.

In cases of acute generalized peritonitis by perforated ulcer or chronic liver abscess it was surgically intervened with vagotomy, pyloroplasty and antrectomy.

Troncular vagotomy performed through subdiafragmic section of both vagal trunks was associated with pyloroplasty.

We also used a combination of laparoscopic troncular vagotomy with seromyotomy, which protects the stomach pylorus innervation.

Because surgery for perforated duodenal ulcer has consequences such as gastric parietal cell sensitivity to gastrin and histamine aggression an anti-secretory postoperative treatment has become mandatory.

Given recent studies, we have selected a treatment protocol for 30 days after surgery with second-generation proton pump inhibitors such as S-omeprazole. This was done in order to obtain a lower clearance from the systemic circulation and an effective action on the active ATP-ase.

In this way new ulcerations were prevented, fact proven during the following controls made in order to determine the gastric pH. The data showed that pepsin was in an inactive state. None one of the patients returned to complain of pain, nausea, flatulence, melena, vomiting.

For cases of infection with preoperative or postoperative proven HP, patients have benefited from the current therapeutic approach, namely the combination of 2, 3 or 4 drug substances alone instead of single mono therapy.

European studies recommended the combination of PPI, clarithromycin and amoxicillin (or metronidazole) for 7 days, followed by monotherapy with standard doses of PPIs for 21 days.

In elderly patients with severe heart failure, being administered the anti platelet aggregation therapy we took into consideration EMEA (European Medicines Agency) guidelines[8].

They warn about possible interactions due to the association in therapy of clopidogrel and proton pump inhibitors used to prevent and treat gastric ulcers (omeprazole, esomeprazole, lansoprazole, pantoprazole, robeprazol).

Results and Discussion

Elderly patients with chronic diseases other than DU require careful monitoring and antiseecretory treatment especially in patients with cardiovascular disease and diabetes.

Antisecretory drugs and those used to treat the infection with HP are proven to be well tolerated and they registered 90% positive results.

The remission was not due to inefficiency of the drug but deviations from the recommendations, declared by the patients when returning to emergency room.

Conclusions

In elderly patients with GU and DU defense factors have a diminished power or they proved to be unable to resist the aggression factors: the mucus, layer of bicarbonate ions, apical phospholipid membrane, vascular circulation in the submucosa.

The treatment period of the benign niche may be longer in the case of elderly patients compared to the young ones and the endoscopic examination considers three stages: acute, healing, scarring.

The used antisecretory treatment helps avoiding hemorrhage, perforation, and piloroduodenal stenosis, and it should be individualized for each clinico-therapeutical approach.

References

1. Consensus Conference of the Romanian Societies of Gastroenterology and digestive endoscopy, Sinaia 1996. The treatment of peptic ulcer and chronic gastritis in *Helicobacter pylori* era. ; 5; 147-158.
2. The European Helicobacter Pylori Study Group. Current European Concepts in the management of *helicobacter pylori* infection. The Maastricht Consensus Report. *Gut* 1997; 41; 8-13.
3. Veldhuyzen Van Zanten, S., Lauritsen, K., Delchier, J.-C., Labenz, J., De Argila, C. M., Lind, T., Treichel, H.-C., Stubberød, A., Cockeram, A., Hasselgren, G., Göthe, L., Wrangstadh, M. and Sinclair, P. (2000), One-week triple therapy with esomeprazole provides effective eradication of *Helicobacter pylori* in duodenal ulcer disease. *Alimentary Pharmacology & Therapeutics*, 14: 1605–1611.
4. Leoniiadis JJ, Sherman VK. Systematic review and meta-analysis of proton pump inhibitor therapy in peptic ulcer bleeding. *Br. Med J* 2005; 330(7491): 568.
5. Goldust B, Heplaree B, Hardiman Y. Nighttime dosing of omeprazole immediate-release oral suspension rapidly decreases nocturnal gastric acidity. *Am J gastroenterol* 2004; 99: 539.
6. Kirshtein B, Bayme M, Mayer T, Lantsberg L, Avinoach E, Mizrahi S. Laparoscopic treatment of gastroduodenal perforation. *Surg Endosc*:2005; vol.19; Nr.12, per. 1627-1630.
7. Oproiu AI. Ulcerul gastric si duodenal. *Medicina interna* vol.3. Ed. Medicala 1998. Bucuresti
8. NIH Consensus Development Level of Helicobacter perfori in peptic ulcer disease. *Yama* 1994;227: 65-69.

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