

PROGNOSTIC FACTORS AND RESULTS IN PERFORATED PEPTIC ULCER

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SUMMARY:

Perforated peptic ulcer (PPU) continues to remain an important health problem, despite the progresses in the last years in the treatment of ulcerous disease. The risk factors associated with high morbidity and mortality are: the age (85.7% deaths were recorded at patients over 65 years old, and 82.9% of the complications appeared at this group of elder patients), associated diseases (100% of the dead patients and 65.3% from those with complications had associated diseases), the time between the onset of the disease and the surgery (100% of the dead patients and 72.9% of the patients with complications were operated over 24 hours from the onset). The location of the ulcer also influences the patients prognostic, in our group the gastric ulcer led to a mortality 2.68 times higher than in duodenal ulcer group. The studies in the literature showed that also the surgery technique influences the morbidity and mortality in PPU. In our statistics, the rate of complications was higher at the patients with gastric resection (36.5%), but due to the selection of patients (young patients with early onset), the rate of mortality was null in this group.

Key Words: peptic ulcer, ulcerous disease.

FACTORI DE PROGNOSTIC SI REZULTATE IN ULCERUL PEPTIC PERFORAT

Rezumat:

Perforatia in ulcerul peptic continua sa ramana o problema de sanatate importanta, in ciuda progreselor din ultimii ani in tratamentul bolii ulceroase. Factorii de risc asociati cu morbiditate si mortalitate crescuta sunt in principal varsta (85.7% dintre decese au fost la pacienti peste 65 de ani, iar 82.9% din complicatii au aparut la cei peste 70 de ani), comorbiditatile asociate (100% dintre pacientii decedati si 65.3% dintre cei cu complicatii au avut comorbiditati asociate), timpul scurs de la debutul bolii pâna la momentul interventiei chirurgicale (100% dintre pacientii decedati si 72.9% dintre pacientii cu complicatii au fost operati la mai mult de 24 de ore de la debutul bolii). Localizarea ulcerului influenteaza prognosticul pacientilor, pe lotul nostru ulcerul gastric a dus la o mortalitate de 2.68 ori mai mare decat ulcerul duodenal. Studiile realizate arata ca tehnica operatorie efectuata influenteaza si ea morbiditatea si mortalitatea in UPP. Pe statistica noastra, rata complicatiilor a fost mare la cei cu rezectii gastrice (36.5%), dar datorita selectiei pacientilor (pacienti tineri cu debut precoce) rata mortalitatii a fost nula in acest grup.

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INTRODUCTION

In the last years, the incidence of peptic ulcer has decreased a lot, due to the introduction of modern antiulcerous therapy with blockers of H₂ receptors and inhibitors of protons pump and also due to the therapy of H.pylori eradication (1,2). However, the incidence of perforated peptic ulcer (PPU) remains at levels between 5% and 10%, while the mortality may be increased up to 50%, if the perforation is older than 24 hours long (3,4).

The purpose of this study is to identify risk factors that influence postoperative results and evaluation of these results.

MATERIAL AND METHOD

The studied group included 427 patients, which were hospitalised with PPU in Timisoara, County Hospital in all surgical clinics, between 2003-2007. Patients with neoplastic or anastomotic ulcers have not been included

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in the study. Also, there have not been included in the study patients treated conservatively with Taylor method, nor the patients where the PPU covered spontaneously and the surgery would have been unnecessary.

Demographical data of the patients, the state at the presentation (presence/absence of shock), associated diseases, the time between the onset of the disease and surgical intervention, the type of surgical intervention, the ulcerous lesions, the type and degree of the peritonitis, prognostic factors that influence the postsurgical results, all these have been recorded and analysed.

Statistical analysis and processing of data collected was performed computerized, using special computer programs.

RESULTS

Between 2003-2007, there have been operated 427 patients with PPU in Clinical County Hospital, Timisoara. Among the 427 patients, there have been 355 men (83.2%) and 72 women (16.8%). The median age was 44 years old, lower for men (42 years old) and higher for women (56 years old), with extremes between 20 and 85 years old. (Table 1)

The diagnostic at the presentation was established taking into consideration the clinical exam at the presentation (confirmed in 95% of the cases in surgery) and the radiological exam (confirmed in 100% cases in the surgery). There were 69 (16.1%) cases, where the radiological examination could not establish the presence of a pneumoperitoneus. The echographic examination was performed in 266 patients (62.3%), and showed the presence of an amount of liquid in the peritoneal cavity. 89 patients (20.8%) presented arterial hypotension at the presentation (systolic tension lower than 90mmHg) and 28 patients (6.6%) showed clear signs of a septic shock (systolic tension lower than 90mmHg, tachypnea > 20/min, leucocytes > 12000/ml).

Table 1: Sex distribution

Man	Woman	Total
355	72	427
83,2%	16,8%	100%

Table 2: Associated diseases

Hypertension	68
Chronical ischemic cardiopathy	54
Cardiac insufficiency	44
Atrial fibrillation	37
Diabetes mellitus	32
Chronical obstructive bronhopneumopathy	27
Pulmonary fibrosis	24
Pulmonary tuberculosis	19
Hepatic cirrhosis	18
Obesity	34
Cancers	5

In order to define the risk factors for PPU, each patient's history on admission was noted, history that relevated smoking at 307 patients (71.9%), consumption of NSAIDs at 91 patients (21.1%) and consumption of alcohol at 287 patients (67.7%). Associated diseases were found at 163 patients (38.2%). The most common diseases were: hypertension at 68 patients, chronical ischemic cardiopathy at 54 patients, cardiac insufficiency 44, atrial fibrillation 37, diabetes mellitus 32, chronical obstructive bronhopneumopathy 27, pulmonary fibrosis 24, pulmonary tuberculosis 19, hepatic cirrhosis 18, obesity 34, cancers 5. (Table 2)

The time between the onset of the disease and the presentation at the hospital could be specified exactly by 335 patients (78.4%). (Table 3)

Before the surgery were administered infusion substances for the hydro – electrolitique and volemic rebalance and also antiulcerous medication (blockers of H2 receptors or inhibitors of protons pump) associated with antibiotics (amoxicilin and metronidazole).

The types of surgery performed were: simple suture , simple suture with epiploonoplasty, ulcer excision with or without epiploonoplasty, pyloroplasty, vagotomy and pyloroplasty, vagotomy and bulbantrectomy, 2/3 gastric resection. (Table 4)

Table 3: Time between the onset of the disease and the presentation at the hospital

< 6 h	6-12 h	12-24 h	24-48 h	48-72 h	>72 h	Total
67	72	116	32	28	20	335(78,4%)

During the surgery, peritonitis was found at all the patients. Of all peritonitis, 399 were generalized

Table 4: Types of surgery

Simple suture	126	29.5%
Ulcer excision (incl. pyloroplasty)	219	51.3%
Bulbantrectomye	48	11.2%
Gastric resection 2 /3	34	8%
Total	427	100%

peritonitis (93.4%), and 28 were localized peritonitis (6.6%). 311 (72.8%) were chemical peritonitis, while 116 (27.2%) were purulent peritonitis.

Patients were evaluated postsurgery, complication and hospital deaths were recorded. Postsurgery complications appeared at 98 patients (22.9%) and it were local complications (postoperative wound infections, eviscerations, intra-abdominal abcess) and general complications (peritonitis, upper digestive bleeding, acute pancreatitis, pneumonia and pleuresis, deep vein thrombophlebitis, pulmonary embolism, myocardial infarction). (Table 5)

In the group we studied, 14 deaths were recorded (3.27%). The cause of the death was multiple organs and

Table 5: Postsurgery complications

Postoperative wound infections	38
Eviscerations	12
Abdominal abscess	23
Peritonitis	26
Upper digestive bleeding	8
Acute pancreatitis	3
Pneumonia and pleuresis	17
Deep vein thrombophlebitis	7
Pulmonary embolism	2
Myocardial infarction	4

systems insufficiency after generalized peritonitis, old peritonitis. 9 of the deaths (64.2%) appeared at elderly patients (age over 70 years old), that were diagnosed at admission with old peritonitis.

DISCUSSION

Surgery for PPU is most commenly accompanied by high rates of morbidity, up to 40%, while the mortality is between 6-30% (5,6). Different studies from medical literature tried to establish which are the risk factors responsible for the high morbidity and mortality in PPU (6,7). The following risk factors have been identified: age, general at the admission in hospital (septic shock or old peritonitis), associated diseases, the time between the onset of the disease and the surgery, the location of the ulcer and also the type of surgery.

The age represents an important risk factor at patients with PPU. Patients over 70 years old diagnosed with PPU are considered patients with a high risk. From the group we studied, 41 patients were over 70 years old, the oldest was 85 years old. From these 41 patients, 34 (82.9%) presented postsurgery complications and 9 (64.2%) of them finally died. The postsurgery complication rates at patients over 70 years old are similar to those observed in literature. Death rates in the studied group is similar than in other studies, because of special demographical dates. It must be mentioned that the other 2 deaths occurred in a patient of 65 and 69 years old. So, 11 cases (85.7%) of the death were recorded at patients over 65 years old, and 82.9% of the complications appeared at this group of elder patients.

Associated diseases, especially: cardiovascular, pulmonary diseases and diabetes mellitus are met in medical literature in 50% cases with PPU, that can lead to an increase of mortality to 50%. In our group, 14 patients that died presented multiple associated diseases (cardiac insufficiency-7, hepatic cirrhosis-5, diabetes mellitus-4, cronic obstructive bronhopneumopathy-2).

The time between the onset of PPU and the surgery represents another important risk factor. The delay of the surgery over 12 hours from the onset increases the death risk 3 times, while the delay over 24 hours increases the death risk 9 times (5,6,7). All the 14 dead patients were operated more than 24 hours from the onset, and two of them at more than 72 hours.

In addition, the rate of postsurgery complications increases with a longer time from the onset until the surgery. Therefore, the patients operated later than 24 hours have a risk of complications 6 times higher then those operated in 24 hours from the onset (7,8). In the statistics we studied, the group operated more than 24 hours, the rate of complications was 73.2%.

Location of lesions is also a risk factor for PPU. In the literature, the risk of mortality is correlated with the

location of the lesions. It is considered that perforated gastric ulcer (PGU) increases the mortality 2-4 times in comparison with perforated duodenal ulcer (PDU) (5,7). In the group we studied, there were 74 cases (17.3%) of PGU and 353 cases (82.6%) of PDU. From the 14 deaths, 5 (6.7%) were due to PGU and 9 (2.5%) due to PDU. The difference is significant, the dates being comparable with those from literature.

The type of the surgery is another important factor in the post-operation evolution. Extended surgery (gastric resections) lead to high morbidity and mortality, in comparison with conservative surgery. In our group only 82 patients (19.2%) suffered extended surgery, the rest being treated conservatively. From these patients, only 30 (36.5%) presented complications, but without any death. Gastric resections were performed at patients under 70 years old with a good, general condition, without signs of a septic shock or purulent peritonitis, where the surgery was done under 12 hours from the onset of the disease. For the elderly patients with septic shock or purulent peritonitis, with associated diseases, where the surgery was performed late (over 24 hours from the onset), conservative surgery was preferred, in this was it could be possible a less time for surgery and anesthesia.

CONCLUSIONS

Perforated peptic ulcer continues to remain an important health problem, despite the progresses in the last years in the treatment of ulcerous disease. The risk factors associated with high morbidity and mortality are: the age (85.7% the death were recorded at patients over 65 years old, and 82.9% of the complications appeared at this group of elder patients), associated diseases (100% of the dead patients and 65.3% from those with complications had associated diseases), the time between the onset of the disease and the surgery (100% of the dead patients and 72.9% of the patients with complications were operated over 24 hours long from the onset). The location of the ulcer also influences the patients prognostic, in our group the gastric ulcer led to a mortality 2.68 times higher than in duodenal ulcer group. The studies in the literature showed that also the surgery technique influences the morbidity and mortality in PPU. In our statistics, the rate of complications was higher at the patients with gastric resection (36.5%), but due to the selection of patients (young patients with early onset), the rate of mortality was null in this group.

For all these reasons, we can say that the age, associated diseases, the time between the onset and the surgery, but also the location of the lesion and the surgery technique influence the treatment results of perforated peptic ulcer.

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