Postoperative complications for complicated malignant tumours of the stomach

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OBJECTIVE — to determine the frequency and structure of postoperative complications for malignant tumours of the stomach accompanied by gastrointestinal bleeding.

MATERIALS AND METHODS. The study analysed the treatment outcomes of 101 patients with a malignant tumour of the stomach complicated by bleeding (84 cases), perforation (6 cases), or stenosis (19 cases, with 8 of them having both stenosis and bleeding). These patients underwent inpatient treatment at the Kyiv City Centre for Gastrointestinal Bleeding and the Kyiv City Clinical Hospital of Emergency Medical Help between 2015 and 2020. Out of the patients, 78 (77.2 %) had histologically confirmed cancer, 11 (10.9 %) had GIST, and 12 (11.9 %) had malignant lymphoma.

RESULTS. During the peak period of ongoing and recurrent bleeding, 5 (6 %) patients required emergency surgery, including 2 (40 %) radical and 3 (60 %) non-radical procedures. After proper preoperative preparation and a comprehensive follow-up assessment, 58 (57.4 %) patients underwent radical surgical interventions for stomach cancer complicated by acute gastrointestinal bleeding in the early delayed period. In the early postoperative period, 4 (15.4 %) patients experienced complications after 26 radical gastrectomies combined with jejunogastroplasty. In the delayed period, early postoperative complications occurred in 9 (28.1 %) patients after 32 radical gastric resections. The total postoperative mortality after emergency surgical interventions was 20.0 %. The total postoperative mortality in the early-term period was 5.7 % (5 patients out of 88), which is 3.5 % less compared to emergency operations (the difference is statistically significant, p ≤ 0.05).

CONCLUSIONS. When urgent surgical interventions are carried out at the peak of ongoing and recurrent bleeding, the mortality rate from postoperative complications is 3.5 times higher than when operations are performed in the early delayed period after adequate preparation and comprehensive patient monitoring. The death rate after radical operations is 2.1 times lower than that after palliative and symptomatic operations. As the operations conducted during the peak bleeding period are associated with high postoperative mortality, we believe that they pose a high risk to patients with malignant tumours of the stomach.

KEYWORDS
malignant stomach tumours, gastrointestinal bleeding, complications, perforation, stenosis.
is the decision about the operation made [5, 6]. In the surgical treatment of malignant tumours of the stomach, complicated by bleeding, the attention of surgeons is focused not only on the possibility of radical removal of the tumour but also on the use of new methods of gastrectomy, and subtotal resection of the stomach, and reconstructive esophagojejunoplasty with the formation of small intestinal reservoirs, which restore the function of the lost stomach and significantly improve the functional results of operative interventions and the quality of life of such patients [2].

Objective — to determine the frequency and structure of postoperative complications for malignant tumours of the stomach accompanied by gastrointestinal bleeding.

Materials and methods

The study analysed the treatment outcomes of 101 patients with a malignant tumour of the stomach complicated by bleeding (84 cases), perforation (6 cases), or stenosis (19 cases, with 8 of them having both stenosis and bleeding). These patients underwent inpatient treatment at the Kyiv City Centre for Gastrointestinal Bleeding and the Kyiv City Clinical Hospital of Emergency Medical Help between 2015 and 2020. Out of the patients, 78 (77.2 %) had histologically confirmed cancer, 11 (10.9 %) had GIST, and 12 (11.9 %) had malignant lymphoma.

The most frequent complication of gastric cancer was gastrointestinal bleeding in 61 patients, of whom 8 had bleeding combined with stenosis of the gastric outlet. In all 23 patients with gastric sarcoma, the tumour was complicated by gastrointestinal bleeding. In 40 (47.6 %) patients, gastrointestinal bleeding was of a moderate degree of severity, in 18 (21.4 %) of an average degree of severity, and 26 (31 %) patients had severe bleeding, of whom 7 (27 %) were delivered in a state of severe hemorrhagic shock.

The presence of gastrointestinal bleeding was established on the basis of clinical symptoms and endoscopic examination data. Endoscopic stigmata of bleeding were determined according to the classification Forrest JAH (1974): 10 patients were hospitalised with endoscopic signs of ongoing bleeding (FIA, FIB), 47 patients with unstable hemostasis (13 patients with FIIB and 34 patients with FIIS), and 27 patients were hospitalised with endoscopic signs of stable hemostasis (III, defect under fibrin).

A total of 19 (18.8 %) patients were urgently hospitalised due to stenotic malignant tumours of the stomach. Among these patients, 9 (47.4 %) had subcompensated gastric outlet stenosis, 10 (52.6 %) had decompensated gastric outlet stenosis, and 8 (42.1 %) had stenosis concurrent with signs of gastrointestinal bleeding of various degrees of severity.

According to the TNM 8 classification (2018), all patients were hospitalised at different stages of cancer. The largest group included patients in stages III (n = 34), IV (n = 32), and II (n = 25), and the smallest group included patients in stages I and Cr in situ (n = 5 each). Among patients with newly diagnosed gastric cancer (n = 51), operative activity was 50.5 % (31 out of 101 patients).

In total, 71 (70.3 %) patients underwent radical surgery, while 30 (29.7 %) had palliative or symptomatic procedures. Radical surgery was conducted at the following stages of the tumour process: I stage and Cr in situ — 10 (14.1 %), II — 20 (28.2 %), III–23 (32.4 %), IV — 18 (25.3 %).

The research was carried out in accordance with the principles of the Declaration of Helsinki. The research protocol was approved by the Local Ethics Committee of Bogomolets National Medical University. The patients gave their informed consent for the study.

Results and discussion

During the peak period of ongoing and recurrent bleeding, 5 (6 %) patients required emergency surgery, including 2 (40 %) radical and 3 (60 %) non-radical procedures. Among non-radically operated patients, one (20.0 %) patient died on the 4th day of the postoperative period. The cause of death was complete cancerous damage to the stomach, carcinomatosis. The patient had undergone a non-radical surgical intervention, specifically stitching of the vessels of the stomach at the peak of bleeding, due to major indications for it. Thus, the total post-operative mortality after emergency surgical interventions was 20.0 %.

All postoperative complications were classified according to the R.A. Clavien and D. Dindo classification (Table).

After proper preoperative preparation and a comprehensive follow-up assessment, 58 (57.4 %) patients underwent radical surgical interventions for stomach cancer complicated by acute gastrointestinal bleeding in the early delayed period. Of them, 9 (15.5 %) patients underwent radical gastrectomies, 5 (8.6 %) had extended radical gastrectomies with splenectomy and resection of the tail of the pancreas due to tumour growth into neighbouring organs and tissues, and 12 (20.7 %) underwent gastrectomy in combination with gastrojejunoplasty aimed at improving the patient’s quality of life in the postoperative period. In the early postoperative period,
4 (15.4%) patients experienced complications after 26 radical gastrectomies combined with jejuno-gastroplasty. The following complications were associated with operative treatment (n = 4): acute postoperative pancreatitis (n = 2), postoperative pancreonecrosis (n = 1), and one patient had left-sided exudative pleurisy. After 32 radical gastric resections in the delayed period, early postoperative complications occurred in 9 (28.1%) patients. The following complications were related to the operation (n = 5): acute postoperative pancreatitis (n = 2), acute pancreatitis in combination with gastrostasis, atony of the gastric stump (n = 1), early ileal intestinal obstruction (n = 1), and mechanical jaundice in combination with right-sided exudative pleurisy (n = 1).

Complications unrelated to surgery were noted in 4 patients: hypostatic pneumonia (n = 1), exudative pleurisy (n = 2), and pulmonary embolism, SPON (n = 1).

In general, 16 complications were observed in 13 patients, with 8 (50%) being concurrent. On average, each patient reported 1.2 complications. It was noted that patients experienced the same number of complications during standard radical resections of the stomach and radical gastrectomies. The frequency of complications depended on the cancer stage, duration, and volume of the surgical intervention.

In the early delayed period, 3 (2.9%) patients underwent repeated surgical procedures due to the occurrence of early postoperative complications after radical surgical interventions. The major indications for repeated surgery were identified as follows: early ileal intestinal obstruction — relaparotomy, ileal dissection, nasogastric intubation of the intestine, and laparostomy (9th day of the postoperative period after standard radical resection of the stomach); postoperative pancreonecrosis (10th day after gastrectomy) — relaparotomy, sequestrectomy (one patient was operated on the 8th day after gastrectomy due to acute pancreatitis); acute cholecystitis — sequestrectomy, cholecystectomy, and external choledochal drainage, according to Pikovsky.

Acute postoperative pancreatic necrosis, a surgery-related complication, caused one (3.0%) fatal case. Another case (3.0%) resulted in death due to the development of pulmonary embolism and multiple organ failure syndrome. Thus, in the early delayed period, postoperative complications after radical surgical interventions contributed to a mortality rate of 3.4%.

After non-radical surgical interventions (n = 30) due to the fourth stage of oncological disease, a fatal outcome occurred in three cases: 1 patient died 5 hours after laparotomy accompanied by suturing of gastric vessels (at the peak of heavy profuse bleeding from a tumour in the stomach), and 1 patient with the fourth stage of stomach cancer and carcinomatosis died 5 days after a diagnostic laparotomy due to the progression of the disease. On the 5th day of the postoperative period, one patient who had undergone palliative subtotal resection of the stomach experienced a fatal outcome after repeated surgical intervention due to perforation of an acute ulcer of the gastric stump and postoperative pancreatitis. Therefore, in the early delayed period, postoperative complications after non-radical surgical procedures resulted in a mortality rate of 10.0%, which is two times less compared to the mortality rate observed after emergency operations (the difference is statistically significant, p ≤ 0.05).

The total postoperative mortality in the early-term period was 5.7% (5 patients out of 88), which is 3.5% less compared to emergency operations (the difference is statistically significant, p ≤ 0.05).

Conclusions

When urgent surgical interventions are carried out at the peak of ongoing and recurrent bleeding, the mortality rate from postoperative complications is 3.5 times higher than when operations are performed in the early delayed period after adequate preparation and comprehensive patient monitoring.

The death rate after radical operations is 2.1 times lower than that after palliative and symptomatic operations. As the operations conducted during the peak bleeding period are associated with high postoperative mortality, we believe that they pose a high risk to patients with malignant tumours of the stomach.
Ускладнення після хірургічного лікування ускладнених злоякісних пухлин шлунка

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Мета — установити частоту виникнення та структуру ускладнень після хірургічного лікування злоякісних пухлин шлунка, ускладнень шлунково-кишковою кровотечею.

Матеріали та методи. Проаналізовано результати лікування 101 хворого зі злоякісною пухлиною шлунка, що ускладнилася кровотечею (84), перфорацією (19), комбінацією стенозу та кровотечі (8), які перебували на стаціонарному лікуванні в київському міському Центри шлунково-кишкових кровотеч та Київській міській лікарні швидкої медичної допомоги в період із 2015 до 2020 р. За результатами підгрупових досліджень, 78 (77.2 %) пацієнтів мали рак, 11 (10.9 %) — гастроінтенсивний комплексь органів шлунка, що ускладнилася кровотечею (8), які перебували на стаціонарному лікуванні в київському міському Центри шлунково-кишкових кровотеч та Київській міській лікарні швидкої медичної допомоги в період із 2015 до 2020 р.

Результати. В екстреному порядку на висоті кровотечі, що тривала, або її рецидиву прооперовано 5 (6 %) пацієнтів, з них радикально — 2 (40 %), нерадикально — 3 (60 %). З приводу гострокровоточивої пухлини шлунка в ранній відтермінований період після проведення адекватної доопераційної підготовки та комплексного дообстеження прооперовано 58 (57.4 %) пацієнтів, яким вдалося виконати радикальні оперативні втручання. Після 26 радикальних гастректомій (разом з єнугастропластикою) у ранній післяоперативній період ускладнення виникли в 4 (15.4 %) хворих, після 32 радикальних резекцій шлунка у відтермінований період — у 9 (28.1 %). За результатами підгрупових досліджень, 78 (77.2 %) пацієнтів мали рак, 11 (10.9 %) — гастроінтенсивній стромальні пухлини (GIST), 12 (11.9 %) — злоякісну лімфому.

Висновки. Летальність від післяоперативних ускладнень ускладнення раку шлунка, що тривала, або її рецидиву прооперовано 5 (6 %) пацієнтів, з них радикально — 2 (40 %), нерадикально — 3 (60 %). З приводу гострокровоточивої пухлини шлунка в ранній відтермінований період після проведення адекватної доопераційної підготовки та комплексного дообстеження прооперовано 58 (57.4 %) пацієнтів, яким вдалося виконати радикальні оперативні втручання. Після 26 радикальних гастректомій (разом з єнугастропластикою) у ранній післяоперативній період ускладнення виникли в 4 (15.4 %) хворих, після 32 радикальних резекцій шлунка відтермінований період — у 9 (28.1 %). За результатами підгрупових досліджень, 78 (77.2 %) пацієнтів мали рак, 11 (10.9 %) — гастроінтенсивній стромальні пухлини (GIST), 12 (11.9 %) — злоякісну лімфому.

Ключові слова: злоякісні пухлини шлунка, шлунково-кишкова кровотеча, ускладнення, перфорація, стеноз.

FOR CITATION