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THE MORTALITY IN EMERGENCY SURGERY

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✓ ***Resume***

Objective. To analyze the mortality due to acute abdominal surgical pathology at the emergency surgical department.

Material and methods. The analysis of all mortality cases due to acute abdominal surgical pathology in Tashkent City Clinical Hospital for the 10 year period was carried out. The causes of death from acute appendicitis, strangulated hernia, bleeding and perforative ulcer, acute cholecystitis and pancreatitis were analyzed.

Results. 16008 patients were hospitalized in the department with the urgent causes for this period. 372 of patients died reaching overall mortality of 2.3%. 268 of 372 patients had undergone surgery. Surgical activity was 56%. 36% of lethal cases included adults and aged people (over 60).

Conclusions. The treatment effectiveness of patients with acute abdominal surgical diseases depends on many reasons, including the time of admission of patients, age, concomitant diseases.

Key words: emergency surgery, abdominal surgery, mortality.

ЛЕТАЛЬНОСТЬ В УРГЕНТНОЙ ХИРУРГИИ

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✓ ***Резюме***

Цель исследования. Провести анализ случаев смертности от острой хирургической патологии органов брюшной полости.

Материал и методы. Изучены случаи летальности больных в отделении экстренной хирургии за 10-летний период. Проанализированы причины смерти от острого аппендицита, ущемленной грыжи, кровотечений и перфораций гастродуоденальной язвы, острого холецистита и панкреатита.

Результаты. За данный период в отделение экстренной хирургии госпитализировано 16008 пациентов. 372 пациента умерли и общая смертность составила 2,3%. 268 из 372 были прооперированные пациенты. Хирургическая активность составила 56%. 36% летальных случаев составили взрослые и пожилые люди старше 60 лет.

Выводы. Эффективность лечения пациентов с острыми хирургическими заболеваниями органов брюшной полости зависит от многих факторов, в том числе от времени до поступления больного в экстренное хирургическое отделение, возраста пациентов, а также наличия у них сопутствующих заболеваний.

Ключевые слова: экстренная хирургия, абдоминальная хирургия, летальность.

ШОШИЛИНЧ ЖАРРОҲЛИКДА ЎЛИМ ДАРАЖАСИ

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✓ ***Резюме***

Тадқиқот мақсади. Шошилинч жарроҳлик бўлимида қорин бўшлиғи аъзолари ўткир хирургик касалликлари туфайли ўлим кўрсаткичини таҳлил қилиш.

Материал ва усуллар. 10 йиллик даврда шифохона шошилинч жарроҳлик бўлимида қорин бўшлиғи аъзолари ўткир хирургик касалликлари туфайли юзага келган ўлим ҳолатлари таҳлил қилинди. Ўткир аппендицит, чурра қисилиши, ошқозон ва ўн икки бармоқ ичак ярасининг қонаши ва перфорацияси, ўткир холецистит ва панкреатит касалликларида юзага келган ўлим ҳолатларининг сабаблари ўрганилди.

Натижалар. Ушбу давр мобайнида 16008 бемор шошилинч жарроҳлик бўлимига ётқизилди. 372 бемор вафот этди ва ўлим кўрсаткичи 2,3% ни ташкил қилди. 372 беморнинг 268 нафарига жарроҳлик аралашуви ўтказилган. Хирургик фаоллик 56%ни ташкил этди. Вафот этган беморларнинг 36% ини 60 ёшдан катта кекса ёшдагилар ташкил қилди.

Хулосалар. Қорин бўшлиғи аъзоларинг ўткир хирургик касалликларига чалинган беморларни даволаш самарадорлиги кўп сабабларга боғлиқ, шу жумладан беморнинг касалхонагача келиш вақтига, ёши ва ҳамроҳ хасталикларга.

Калит сўзлар: шошилинч жарроҳлик, абдоминал жароҳлик, ўлим кўрсаткичи.

Relevance

It is well known that acute abdominal surgical diseases occupy a prominent place among all surgical pathologies. Late patient admission and consequently their delayed delivery to hospital dramatically increase the danger of adverse outcome of urgent abdominal diseases [1-4]. Patients with acute abdominal surgical diseases are the most difficult and complex group of patients, requiring rapid decision making and management [1,10,11]. It is also well known that mortality analysis helps to improve the organization of medical and preventive care for patients.

Purpose of the study. To analyze the mortality due to acute abdominal surgical pathology at the emergency surgical department.

Material and methods

We carried out the mortality analysis of Department of General Surgery of TashPMI which is situated in Surgical department of Tashkent City Clinical Hospital with acute abdominal surgical diseases for the 10 year period (between 2013 and 2022).

Table 1. Number of surgical patients treated for the period of 2013- 2022:

Years	Number of patients, n	Number of surgeries, n (%)	Hospital stay, days	Surgical activity, %	Postoperative mortality, n (%)	Mortality without surgery, n (%)
2013	1833	1093(60%)	4.8	60	29 (2.7%)	9 (0.82%)
2014	1511	810(54%)	5.2	54	39 (4.8%)	17 (2%)
2015	1668	844(51%)	5.1	51	37 (4.4%)	12(1.42%)
2016	1398	767(60%)	5.4	55	19 (2.5%)	13(1.7%)
2017	1453	754(55%)	6.0	52	17 (2.3%)	11(1.46%)
2018	1438	729 (51%)	5.2	52	22 (2,9%)	15 (2,1%)
2019	1417	786 (55%)	5.1	54	24 (3,1%)	12 (1,5%)
2020	1468	711 (48%)	5.2	58	16 (2,2%)	13 (0,18%)
2021	1938	1304(67%)	4.6	67	37 (2.8%)	-
2022	1884	1138(60%)	5.2	60	20 (1.8%)	2 (0.76%)
Total	**16008**	**8936**(56%)	**5.2**	**56**	**268** (3%)	**104** (1.2%)

Result and discussions

16008 patients were hospitalized in the department with the urgent causes for the period. 372 of patients died reaching overall mortality of 2,3%. 268 of 372 patients had undergone surgery and which means surgical activity was 56%.

The significant portion of lethal cases (96 patients, 36%) included adults and aged people (over 60), which corresponds to the literature data [5-9]. One patient who undergoing surgery died due to

ulcerative perforation of stomach was 92 and another one undergoing surgery with bleeding ulcer was 103 years old!

Unfortunately, the complications after appendectomy were inevitable and depended on many factors, among which delayed call of the patient was of great importance. Postoperative mortality was 0,04%. The causes of complications after appendectomy were late treatment, and, consequently, delayed surgical interventions, more invasive surgery. These complications were directly depended on degree of destruction of appendix [3, 4].

7501 patients (47%) had surgery for acute appendicitis for this period. Among them 3 patients (0,04%) died, but in all of these cases, the cause of death was exacerbation of concomitant diseases. Thus, one patient (0,018%) had thyrotoxic crisis and his death was caused by cardiomyopathy with uncontrolled tachycardia and ventricular fibrillation. Two subsequent patients (0,036%) with neglected peritonitis (due to late treatment) after the surgery died from acute myocardial infarction and mesenteric thrombosis. These patients had concomitant cardiac pathology. Death occurred despite taking preventive measures.

Meanwhile, the mortality was several times higher after strangulated hernia repair than elective hernia repair [7]. After strangulated hernia repair 12 patients died. The postoperative mortality was 4,5%. Thus, medical examination and rehabilitation of patients in that category remains the urgent issue. Among elderly patients, where patients with hernias are of significant proportion the risk of complications rises due to comorbidities, especially in emergency surgery.

17(6,6%) of 258 patients died due to peritonitis after perforated ulcer of stomach and duodenum. We took into account the general condition and age of patients, the presence of concomitant diseases and other the risk factors. All patients were undergone to suturing of ulcer perforation and abdominal draining.

Management of patients with acute pancreatitis was related to the generally accepted maximum conservative, low traumatic principles. Indications for surgery: pancreatogenic peritonitis, ineffectiveness of conservative treatment, infected pancreatic necrosis. The diagnosis was made on the basis of the clinical picture and data of laboratory and instrumental examination. In pancreatic necrosis the draining of omental bursa, marsupilation, injecting into parapancreatic tissue 0,5% procain solution with protease inhibitors, according to the indications were performed, and cholecystectomy with drainage of common bile duct or cholecystostomy was done. From 1073 patients (6,7%) with acute pancreatitis, 148 (13,8%) were operated, intraoperatively there were varying degrees of pancreatic necrosis, which also progressed after surgery. 112 of them (76%) with died due to severe disease.

Number of patients with ulcerative gastroduodenal hemorrhages were 1681 (10,5%), 62 from them (3,7%) died, 94 patients (5,6%) had surgery. The time to hospitalization after the bleeding onset mostly was 3-5 hours, but in 14 patients (23%) it was from 2 to 10 days (!). All patients were delivered in serious condition, with hemorrhagic shock, 40 of them (65%) had were in terminal state. The patients were between 31 and 103 years, 45 were men and 17 were women (73% vs 27%).

The ulcer profuse bleeding was in 37 (2,2%) patients. Seven patients as a bleeding source had gastric tumors. One had the acute gastric ulcer and 6 others had progressive deterioration of condition and died on the operating table before surgery has started. All other patients were also operated, and, 7 patients initially being operated for a long time refused surgical treatment, that worsened their condition. In all these patients the endoscopic examination and the Forrest scale assessment showed that all hemorrhages refer to IA or IB degree. The laboratory monitoring of hemoglobin, RBC count and hematocrit were also carried out in follow-up.

The analysis of concomitant diseases showed that one patient had terminal phase of chronic renal failure, 2 patients had liver cirrhosis, 6 patients had coronary heart disease, 3 of them had acute myocardial infarction. 4 patients had morbid obesity and 2 patient suffered from chronic alcoholism.

Thus, all deceased patients with gastroduodenal hemorrhages were admitted in serious condition and they were hospitalized late, often refused to examine (gastroduodenoscopy) and surgical treatment, and they had comorbidities. The dynamics of death for this group of patients showed that the use of active management tactics for surgical interventions increased the lethality, which is confirmed by the literature data [1,6]. Patients died of acute cardiovascular failure and hemorrhagic shock.

2353 (14,7%) patients admitted to the department with acute cholecystitis, 1577 (67%) of them were delivered later than 24 hours after the onset. As a rule, they were elderly people with severe concomitant diseases, suffering from cholelithiasis for a long time with pronounced morphological and anatomical changes in the affected area. All that created serious technical difficulties during operation, the complexity of postoperative period. The complications in these cases could reach as high as 7-13% and more [2, 5].

The results obtained are shown in the table:

Table 2. Cause of death by nosology

№	nosology	operated deceased, n (%)	cause of death	non-operated deceased, n (%)
1	acute appendicitis	3(0,04%)	1-thyrotoxic crisis, 1-acute myocardial infarction, 1-later appeal, toxic and hypovolemic shock, mesenteric thrombosis.	-
2	acute cholecystitis	6(1,6%)	6- acute cardiovascular failure.	-
3	acute pancreatitis	112(76%)	all- ongoing peritonitis and toxemia, 5-prolonged intravascular coagulation, 3-acute myocardial infarction	4-refusal of the patient from the operation
4	strangulated hernia	12(4,5%)	7-concomitant cardiac pathology, acute cardiovascular failure, 1- hypovolemic and toxic shock, acute multiple organ failure	-
5	perforated ulcer of stomach and duodenum	17(6,6%)	7 – later appeal, toxic and hypovolemic shock, 2- prolonged intravascular coagulation, 8- acute cardiovascular failure.	-
6	ulcerative gastroduodenal hemorrhages	62(3,7%)	All patients were delivered in serious condition, with hemorrhagic shock, 29 of them had were in terminal state, 4- acute cardiovascular failure,1- terminal phase of chronic renal failure.	5-terminal state, 2-refusal of the patient from the operation, 4-before surgery
7	esophageal bleeding	13(14%)	4 - recurrent bleeding, being accompanied with hepatitis, 3 - had severe hepatargia, 2-acute cardiovascular failure, 2-terminal state, 2-acute multiple organ failure	15(17%)-acute cardiovascular failure 3(3,3%)-late admission, terminal state
7	ileus	8 (1,7%)	1-later appeal, toxic and hypovolemic shock, 1- prolonged intravascular coagulation, 1- acute cardiovascular failure, 1-terminal state, 1- pulmonary edema	-
8	other nosology	35		
	Total	268		

All details of preoperative management for patients, the examination, features of the choice for surgical tactics and postoperative care were worked out in sufficient detail. For those 10 years, 359 operations of complicated forms for acute cholecystitis were performed, 6 patients (1,6%) died. The patients often refused from surgical treatment, referring to the previous recommendations of internists to perform conservative treatment. Doctors of related specialties must adhere to a single point of view on indications for prompt treatment of this patients.

Liver cirrhosis with esophageal bleeding was in 176 patients (0,8%), 38 of them (22%) died. In 25 (14%) people the cause of death was recurrent bleeding, being accompanied with hepatitis, and 13

(7%) had severe hepatargia. The severe condition of patients did not allow to use surgical treatment. However, almost all patients in the past were treated outpatiently and permanently and none of them had surgery. Close contact of surgeons with internists came to conclusion of more timely examination and treatment of such patients.

It should be emphasized that concomitant diseases play a significant role in the structure of mortality. The overwhelming majority of deceased patients suffered from various, sometimes several concomitant diseases and these diseases were often the cause of death. The received data testified the necessity of continue improving organizational and tactical, medical-diagnostic issues in uncomplicated surgery.

Conclusions

1. In the mortality structure from acute abdominal surgical diseases, the significant number of patients (36%) are adults and elderly, which was explained by the presence of concomitant diseases, atypical clinical picture of diseases in this category of patients and late admission to hospital.
2. The treatment effectiveness of patients with acute abdominal diseases depended on the large extent of ongoing medical and educational work.
3. The mortality rate was: after appendectomy – 0,04 %, strangulated hernia – 4,5%, perforated gastroduodenal ulcer - 6,6%, pancreatic necrosis -76%, ulcerative gastroduodenal hemorrhages - 3,7%, acute cholecystitis -1,6%.
4. Effective prophylactic medical examination and planned rehabilitation of those groups of patients were the best measures to prevent and reduce the mortality from strangulated hernias, perforated gastroduodenal ulcers, acute cholecystitis.

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