Yu.L. Yevstakhevych[1]
M.M. Semerak[1]
I.Yo. Yevstakhevych[1]
Ya.I. Vyhovska[1]
H.B. Lebed[2]
I.M. Tumak[2]
O.A. Petronchak[3]
V.E. Loginsky[1]

[1]*State Institution «Institute of Blood Pathology and Transfusion Medicine»*

[2]*Lviv National Medical University named after Danylo Galytsky*

[3]*Lviv Oncology Regional Treatment and Diagnostic Center, Lviv, Ukraine*

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SPLENECTOMY IN THE TREATMENT OF DIFFUSE LARGE B CELL LYMPHOMA AND ITS RESULTS

Objective: *to analyze the immediate and long-term results of splenectomy in patients with diffuse large B cell lymphoma and, as based on the results, to specify indications for splenectomy, surgical approach and outcomes.* ***Object and methods:*** *among 114 splenectomies in patients with non-Hodgkin's lymphomas (NHL), 29 splenectomies were performed in patients with diffuse large B cell lymphoma (DLBCL). Among them there were 15 men and 14 women 21–75 years old (median age — 57 years). The indications for splenectomy in patients with DLBCL were: splenomegaly, leukopenia, immune thrombocytopenia, autoimmune hemolytic anemia, regional portal hypertension, absence of diagnosis. The statistical processing was performed by means of software package Statistica for Windows 6.0 (StatSoft, USA). Parametric data was presented as median (minimum-maximum) [lower-upper quartiles]. The results of splenectomy were assessed in the immediate post-splenectomy period (on the fourteenth–sixteenth day) pursuant to criteria described in the references and during follow-up control. The overall patients' survival was determined by the Kaplan — Meier method and described as a median survival (lower-upper quartiles) and 3- and 5-year survival was also estimated constructing tables of cumulative survival. The survival curves were compared using the log-rank and Cox tests.* ***Results:*** *splenectomy was effective in 25 (86.2%) patients with DLBCL: abdominal discomfort, anemia, leukopenia were eliminated, hemolysis associated with autoimmune hemolytic anemia stopped, and the number of platelets associated with immune thrombocytopenia increased or normalized, and hemorrhagic syndrome disappeared. One patient died immediately after splenectomy. Early postoperative mortality after splenectomy in patients with DLBCL was 3.4%. The analysis of long-term results of splenectomy in DLBCL patients showed that the median survival according to Kaplan — Meier curve was 31.9 months (observation period 1.0–192.0 months, the lower quartile and the upper quartile are 5.6–72.5 months) with 3-year cumulative survival 48.7% of patients and with 5-year — 32.9%. In patients with concomitant immune cytopenias median survival was 6.5 months in contrast to 56.5 months in their absence. The difference with between the groups was highly significant — $p < 0.01$ by log-rank criterion and Cox's F Test. Multivariate analysis by Cox regression method showed that in addition to cytopenia, an independent predictor of less survival is an earlier onset of relapses, age and duration of the disease did not affect survival.* ***Conclusions:*** *as a result of splenectomy in patients with DLBCL, the direct clinical and hematological effect occurred in 86.2% of cases. In DLBCL patients who did not have concomitant immune cytopenias, the median survival after operation was 56.5 months, in contrast to 6.5 months in the presence of immune cytopenias. The best results of splenectomy in DLBCL were recorded in patients with isolated spleen lesions: patients lived from 72 to 186 months.*

Non-Hodgkin's lymphomas (NHL) are the malignant tumors of lymph nodes system when in 6% of cases pathological process invades the spleen [1]. Therefore, among a large variety of splenic lymphomas diffuse large B cell lymphoma (DLBCL) occurs in 11% of cases [2, 3]. The main therapeutic method in treating DLBCL is chemotherapy, however, in case of progressive increase in spleen weight the chemotherapy efficacy may significantly decrease. The large size of the organ may lead to compression syndrome (occasional abdominal pain, constipation, signs of chronic intestinal obstruction), regional portal hypertension (RPH); there is also a risk for the stroke and spontaneous rupture of spleen. Moreover, DLBCL, as other types of lymphoma, in 10–15% of cases is complicated by concomitant immune cytopenias in pathogenesis of which the spleen may play a key role [4–6]. In such cases an issue on the necessity of splenectomy performance arises.

The aim of the paper was to analyze the immediate and long-term results of splenectomy in patients with

DLBCL and, as based on the results, to specify indications for splenectomy, surgical approach and outcomes.

OBJECT AND METHODS

During the period of 1986–2017 at the Department of General and Hematological Surgery of the State Institution «Institute of Blood Pathology and Transfusion Medicine of National Academy of Medical Sciences of Ukraine» (Lviv) and at the premises of the Department of Surgery of Lviv City Communal Clinical Hospital No. 5 among 114 splenectomies in patients with NHL, 29 splenectomies were performed in patients with DLBCL. Among them there were 15 men and 14 women 21–75 years old (median age — 57 years).

The diagnostics of DLBCL was performed as based on the results of the clinical and instrumental examinations, cytological examination of peripheral blood, bone marrow, histological examination of biopsy specimens of the removed lymph nodes and/or spleen, immunophenotypic features of malignant cells of the investigated tissues in accordance with current classifications (WF, REAL) with further specification pursuant to WHO classification [7]. The extending (stage) of the disease was estimated on grounds of clinical, X-ray, ultrasonographic examinations and computed tomography according to Ann Arbor staging system [8]. 12 patients were diagnosed with III-E or III-ES stage disease, and 17 patients were diagnosed with IV stage disease (Table 1). However, only 5 (17.2%) patients were diagnosed with DLBCL before surgery. Other patients had different diagnoses excluding peripheral lymphadenopathy and DLBCL typical cells in bone marrow and peripheral blood: splenomegaly of undefined origin with suspected NHL (n = 14), myelofibrosis (n = 2), splenic cyst (n = 2), splenic hematoma (n = 1), primary splenic cancer (n = 4), Lennert's lymphoma (n = 1). 5 (17.2%) patients with DLBCL underwent chemotherapy courses before surgery. In all cases the chemotherapy proved to be ineffective.

The indications for splenectomy in patients with DLBCL were: splenomegaly, leukopenia, immune thrombocytopenia (ITP), autoimmune hemolytic anemia (AIHA), RPH, absence of diagnosis.

The statistical processing was performed by means of software package Statistica for Windows 6.0 (StatSoft, USA). Parametric data was presented as median (minimum-maximum) [lower-upper quartiles]. The overall patients' survival was determined by the Kaplan — Meier method and described as a median survival (lower-upper quartiles) and 3- and 5-year survival was also estimated constructing tables of cumulative survival. The survival curves were compared using the log-rank and Mantel — Cox tests.

RESULTS AND DISCUSSION

As it has been already mentioned, 29 patients with DLBCL underwent splenectomy. All patients, except for three of them, were in satisfactory clinical condition complaining of general weakness, easy fatigability, weight loss, sensation of heaviness and periodical pain in the left hypochondrium (grade 1–2 according to ECOG scale); 10 patients suffered from fever. The disease duration before splenectomy ranged from 1 to 48 months (median 4 months, lower-upper quartiles 3–6 months). During physical, ultrasound examinations and computer tomography, the enlargement of peripheral lymph nodes was observed in 5 (17.2%) patients, intra-abdominal — in 23 (79.3%) patients (Table 1). 3 patients were diagnosed with a left-sided reactive pleuritis accompanied by continuous cough in 2 cases. All the patients suffered from a splenomegaly, moreover, in 19 (65.5%) patients the spleen occupied all the left side of the abdomen and its inferior pole descended into the small pelvis. Hepatomegaly (the liver protruded below the costal margin to 1–6 cm) was observed in 14 (48.3%) patients.

In 22 (75.9%) patients an increased diameter of the splenic and portal veins was observed sonographically, indicating the presence of RPH. Hematological examination of peripheral blood defined anemia (Hb < 100 g/l) in 19 (65.5%) patients, leukopenia (leukocytes $<3.5 \cdot 10^9$/l) in 17 (58.6%) cases, leukocytosis in 5 (17.2%) patients, thrombocytopenia (platelets $<100.0 \cdot 10^9$) in 9 (31.0%) patients (Table 1).

Table 1

Clinical and hematologic characteristics and results of splenectomy in patients with DLBCL

Criteria	
Number of patients	29
Sex: Male/Female	15/14
Age > 60 years	9
Disease duration before splenectomy (months)	1–48
General condition according to ECOG ⩾ 2	10
DLBCL + AIHA	2
DLBCL + AIHA + ITP	3
DLBCL + ITP	6
Clinical signs	
Peripheral lymph nodes	5
Mediastinal lymph nodes	0
Intra-abdominal lymph nodes	23
Splenomegaly	29
Hepatomegaly	14
Bone marrow involvement ⩾ 30% of lymphoid cells	0
Stage of disease	
III	12
IV	17
Indices of peripheral blood	
Anemia < 100 g/l	19
Thrombocytopenia $< 100 \cdot 10^9$/l	9
Leukocytosis $> 10 \cdot 10^9$/l	5
Leukopenia ⩽ $3{,}5 \cdot 10^9$/l	17
Reticulocytes > 20‰	5
Erythrocyte sedimentation rate > 20 mm/h	16
Therapy before splenectomy	5
Intraoperative indices	
Massive splenomegaly (weight > 1500 g)	17
Perisplenitis	9
Regional portal hypertension	22
Ascite	7
Bleeding during surgery	11
Blood loss > 500 ml	5
Response to splenectomy	
Remission > 12 months	7
Remission 2–12 months	13
Absence of remission (progression)	4

In 11 (37.9%) patients the disease was complicated by immune hemocytopenias. In 6 cases it was ITP, in 2 patients — AIHA with thermal antibodies, and in 3 patients the combination of ITP and AIHA was detected (Evans — Fisher syndrome). In the presence of ITP, the number of platelets was from single in the drug to 99.0 • 10^9/l, although hemorrhagic syndrome was recorded only in 3 cases. With complication of AIHA, reticulocytosis of 22–128‰, hyperbilirubinemia due to indirect fraction (24.0–68.0 μmol/l) and positive direct Coombs' test and warm agglutinins were observed.

Concomitant diseases were found in 4 patients: chronic pyelonephritis (n = 3), hepatitis C (n = 1), chronic hepatitis (n = 1), acquired valvular heart disease (n = 1).

Splenectomy was mainly performed under intubation anesthesia via the upper middle laparotomy. 2 patients underwent surgery under spinal anesthesia. In particular patients with massive splenomegaly (spleen weight > 1.5 kg), marked perisplenitis and vascular anastomoses among organs resulting from RPH the laparotomy incision was extended towards pubic articulation or supplemented by a lateral incision on the left 2 cm above the umbilicus. Since 2002 all patients were immunized with Pneumo-23 and recently with Prevenar vaccines before splenectomy in order to prevent post-splenectomy infection.

The results of splenectomy were assessed in the immediate post-splenectomy period (on the fourteenth–sixteenth day) pursuant to criteria described in the references [9] and during follow-up control.

During laparotomy, all patients had significant splenomegaly, what is more in 17 (58.6%) patients the spleen had a giant size (28–45 cm in length and 15–50 cm in width). Massive splenomegaly was usually accompanied by the RPH (n = 22), and was manifested by splenic, abdominal, omental and diaphragmatic varices; the ascitic fluid was found in the abdominal cavity in 7 patients (24.1%) in the amount of 0.4–0.6l. As it was noted, 23 (79.3%) patients had enlarged intra-abdominal lymph nodes. In 21 cases, their conglomerates were observed in various parts of the abdominal cavity: along the hepatoduodenal ligament, along the lesser and greater omentum, mesenteric, along the upper edge of the pancreas, along the lesser and greater curvatures of the stomach, para-aortic, retroperitoneal and, most of all, in the splenic hilum; moreover, the enlarged lymph nodes in the splenic hilum singularly were found only in 2 patients. Perisplenitis in the form of adhesions of the spleen to the surrounding organs (stomach, diaphragm, colon, and in some cases completely «walled-up» spleen in adhesions) was observed in 9 (31.0%) patients. In these patients, surgery was accompanied with significant technical difficulties, bleeding in the splenic bed, which was especially excessive with concomitant RPH and/or ITP. The average blood loss amounted to 180.0 ml. In 2 patients during the splenic mobilization it's rupture occurred, which resulted in excessive intra-abdominal bleeding with blood loss of more than 1.0 liter of blood. The «quickfire» splenectomy was carried out with a parallel stabilization of the patients' condition.

While carrying out histological and immunohistochemical studies of the excised spleens, the diagnosis of DLBCL has been defined or confirmed: CD45 (2B11 + PD7/26) — positive reaction, CD20cy (L26) — positive reaction, CD5 (4C7) — negative reaction, CD30 Ab-1 (Ber-H2) — negative reaction, CD3 (PS1) — negative reaction. The mass of the excised spleens ranged from 800 to 5100 g.

Splenectomy was effective in 25 (86.2%) patients with DLBCL: abdominal discomfort, anemia, leukopenia were eliminated, hemolysis associated with AIHA stopped, and the number of platelets associated with ITP increased or normalized, and hemorrhagic syndrome disappeared.

In 3 patients with DLBCL splenectomy was ineffective.

Patient K., 54 years old, was diagnosed with Lennert's lymphoma with complaints of hectic fever, dizziness, discomfort in the left hypochondrium. In connection with splenomegaly, pancytopenia (anemia, leukopenia, thrombocytopenia) and complete inefficiency of chemotherapy (numerous courses for 4 years), the patient underwent salvage splenectomy. As a result of surgery, the phenomena of hypersplenism were eliminated and the high temperature disappeared. However, on the 7th day after surgery, the patient's condition began to deteriorate: fever resumed, a sharp general weakness appeared. The patient died on the 22nd day after surgery due to relapse of pancytopenia, progression of the disease and multiple organ failure. Pathohistological conclusion of the excised spleen: DLBCL.

Patient H., 25 years old, was admitted to the hospital complaining of sharp general weakness, feeling of heaviness in the left hypochondrium with a preliminary diagnosis: myelofibrosis, severe AIHA, splenomegaly. Blood test on admission: Hb — 51 g/l; erythrocytes — 1.7 • 10^{12}/l; leucocytes — 3.9 • 10^9/l; reticulocytes — 80‰; platelets — 34,0 • 10^9/l. Due to the giant size of the spleen and hemolytic anemia the patient underwent splenectomy, resection of the tail of pancreas. Surgery was accompanied by severe bleeding from the varicose veins of the diaphragm, therefore it was necessary to tamponade the left sub-diaphragmatic space and the splenic bed. On the 11th day after splenectomy the general condition of the patient has improved, and the indices of peripheral blood stabilized: Hb — 98 g/l; erythrocytes — 3.7 • 10^{12}/l; leukocytes — 27.0 • 10^9/l; reticulocytes — 8‰; platelets — 589.0 • 10^9/l. However, on the 22nd day after splenectomy, the patient's condition has deteriorated sharply, relapse of pancytopenia and hemolysis, and he died on the 32nd day after surgery.

Patient H., 65 years old, was admitted to the hospital complaining of sharp general weakness, pain in the left hypochondrium, hectic fever, gastrointestinal bleeding. Blood test: Hb — 82 g/l; erythrocytes — 2.6 • 10^{12}/l; leukocytes — 2.2 • 10^9/l; platelets — 10.4 • 10^9/l. Due to the serious condition of the patient, massive splenomegaly

and lack of diagnosis under the control of ultrasonography, the patient underwent a diagnostic puncture of the spleen, but the diagnosis was not established, and splenectomy was prescribed. Surgery was performed with significant technical difficulties, severe bleeding and blood loss (more than 1000 ml) (large spleen in varicose adhesions with surrounding organs). Surgery was completed by tamponade of the left hypochondrium. Splenectomy did not give the expected effect: the level of hemoglobin did not increase, leukopenia and thrombocytopenia preserved, hemolysis increased. The patient died after 1 month after surgery of pancytopenia phenomena, relapse of hemolysis, chronic adrenal insufficiency on the background of complete inefficiency of splenectomy.

The above clinical cases confirm the thesis about heterogeneity of DLBCL and difficulties in predicting the effectiveness of splenectomy. The condition of these patients was extremely severe, and splenectomy was of the nature of salvage surgery, when on the background of the severe disease, splenomegaly, pancytopenia, lack of diagnosis, and in one case of complete inefficiency of chemotherapy, surgery remained to be the only diagnostic and therapeutic method.

Postoperative complications were observed in 4 (13.8%) patients with DLBCL: pneumonia (n = 1), adrenal insufficiency (n = 2). In two patients pancreatic necrosis has developed: in one patient after splenectomy with proximal resection of the stomach, and in other patient after splenectomy with planar resection of the diaphragm, stomach and distal resection of the pancreas. If in the last patient this serious complication was cured by a conservative treatment, then in another patient pancreatic necrosis resulted in necrosis of the gastric remnant, parapancreatic and gastric fistula and parapancreatic abscess. The patient underwent relaparotomy with abscess opening. After long-term treatment, both patients were discharged in satisfactory condition. According to the literature, in patients with chronic lymphoproliferative diseases, after splenectomy, as a rule, infectious, inflammatory or thrombohemorrhagic complications occur. The most common are subdiaphragmatic abscess [10, 11], pneumonia [12, 13], pancreatic necrosis [14–16], splenic vein stump thrombosis [17, 18]. The causes of their occurrence are the presence of aggressive malignant disease, technical errors during surgery, as well as negligent and too short qualified monitoring of the patient after splenectomy. The surgeon, in our opinion, should try to avoid crude manipulation in the splenic hilum, perform a reliable hemostasis of its bed, in some cases, do not rush to remove the drains from the left hypochondrium. The post-operative control and correction of the platelet count in dynamics is also important, due to possible postsplenectomy hyperthrombocytosis, which can lead to serious thrombotic complications.

One patient died immediately after splenectomy. ***Patient H.***, 67 years old, was admitted to the hospital complaining of general weakness, weight loss, shortness of breath, nosebleeds, fever (body temperature > 38 °C) (ECOG 2). The patient was diagnosed with NHL with the stomach wall lesions, splenomegaly, chronic calculous cholecystitis. The patient underwent splenectomy, cholecystectomy, resection of lymphoma formation of the anterior wall of the lesser curvature of the stomach. As a result of acute pulmonary and heart failure and pulmonary edema, the patient died on the 4th day after surgery. Thus, early postoperative mortality after splenectomy in patients with DLBCL was 3.4%.

The analysis of long-term results of splenectomy in DLBCL patients showed that the median overall survival according to Kaplan — Meier curve was 31.9 months, observation period (1.0–192.0 months, the lower quartile and the upper quartile are 5.6–72.5 months), with 3-year cumulative survival — 48.7% of patients and with 5-year — 32.9% (Fig. 1). In patients with concomitant immune cytopenias median survival was 6.5 months in contrast to 56.5 months in their absence (Table 2). The difference with between the groups was highly significant — $p < 0.01$ by log-rank criterion and Cox's F Test (Fig. 2). Multivariate analysis by Cox regression method showed that in addition to cytopenia, an independent predictor of less survival is an earlier onset of relapses, age and duration of the disease did not affect survival.

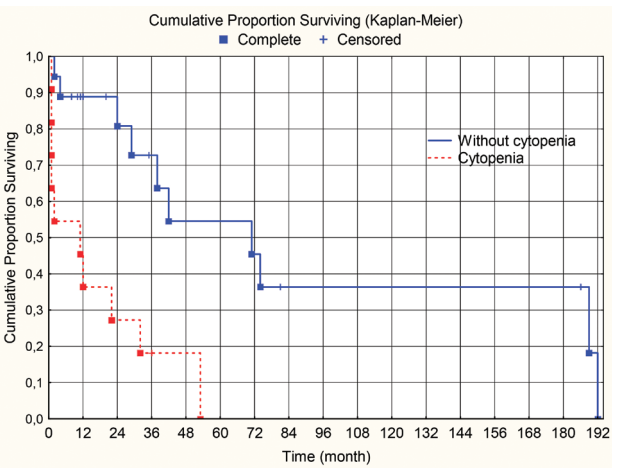

Fig. 1. Overall survival of patients with DLBCL (with and without complications with cytopenias) IU 31.9

Table 2

Survival characteristic in groups with immune cytopenias and without them

Criteria	Patients with cytopenia (min-max) [LQ-UQ], n = 11	Patients without cytopenia (min-max) [LQ-UQ], n = 18
Age, years old*	56 (21–67) [45–64]	58.5 (25–75) [50–61]
Duration of the disease before splenectomy, months*	6 (2–48) [4–12]	3 (1–16) [2–5]
Relapse after splenectomy, months*	3 (1–49) [1–22]	3.5 (1–6) [2–4]
Men	5 (45.5%)	9 (50%)
Died	10	10
Alive at the time of the last contact	1	8
Survival**	6.5 (1–53) [1–24]	56.5 (27.6–145.9) [2–192]
3-year cumulative survival rate	18.2%	68.2%
5-year cumulative survival rate	0	46.9%

*Median (min–max) [25–75%]; **median (min–max) [25–75%], determined by the Kaplan – Meier method.
LQ – lower quartile; UQ – upper quartile.

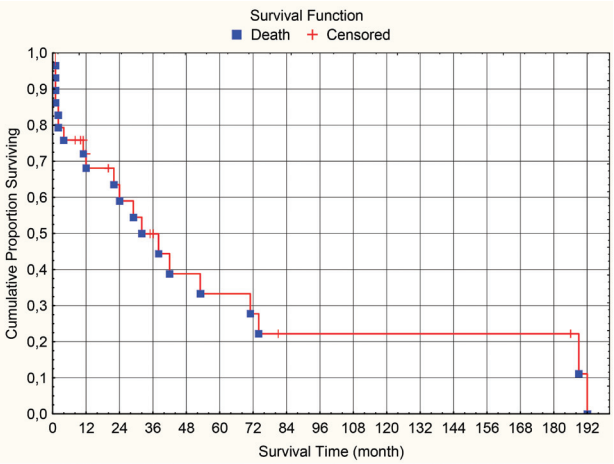

Fig. 2. Overall survival of patients with DLBCL complicated by immune cytopenias (group 1, IU 6.5) and patients with DLBCL without cytopenias (group 2) (IU 56.5), log-rank test 2.855, p = 0.0043

I. Smeltzer, *et al.* from the Mayo Clinic (Rochester, USA) found that in 9 DLBCL patients a median overall survival after splenectomy amounted to 6 months [19]. The authors believe that in this variant of lymphoma splenectomy is indicated only in the presence of massive splenomegaly on the background of complete inefficiency of chemotherapy. M. Mollejo, *et al.* divided DLBCL into three pathohistological variants depending on the type of splenic lesions: macronodular, micronodular and diffuse lymphoma of the red pulp of the spleen. The authors recorded the best results of splenectomy in macronodular DLBCL: 15 out of 20 patients survived and 13 of them had complete remission within 7–120 months. The authors also concluded that micronodular DLBCL is more aggressive: since the diagnosis establishment, patients lived on average for 2 years and therefore in this variant of the disease splenectomy has only diagnostic value [20].

Unfortunately, we also must admit that there are a relatively large number of unsatisfactory consequences of splenectomy in DLBCL. So, 8 (27.6%) patients lived after surgery for only 1 year. Especially bad were the results in patients who had both anemia, leukopenia, thrombocytopenia before surgery, and in some cases also hemolysis (n = 5). Four of these patients died after 1–2 months after surgery and only one patient lived for 12 months. In some cases, splenectomy, as already noted, was carried out as salvage surgery, despite the serious condition of the patient, due to the complete ineffectiveness of the previous chemotherapy and concomitant immune cytopenia. However, despite the above, we believe that splenectomy plays an important role in the treatment of DLBCL, accompanied by the splenic lesions. First, in the absence of peripheral lymphadenopathy, as a result of splenectomy, the final version of NHL is established, and secondly, in 5 (17.2%) patients, we recorded postoperative survival from 72 to 186 months, and in 3 of them after surgery only 2–4 courses of chemotherapy were carried out. Generally, these were patients whose tumor mass was localized directly in the spleen.

Patient Z., 54 years old, was admitted to the Department of Surgery with a diagnosis of splenomegaly, tumor of the spleen, with the presence of reactive peripheral lymph nodes. A biopsy of the cervical lymph node was carried out, which was unsuccessful. During splenectomy, a round-shaped tumor with a diameter of about 8.0 cm was detected, of cartilaginous consistency, which occupied the entire upper pole of the spleen. Pathohistological conclusion: DLBCL. After surgery, the patient lived for 189 months, not receiving any treatment and died for other reasons. These patients for DLBCL with the presence of isolated tumor of the spleen, we observed in three cases. One lives for 81 months, the second-186 months after surgery, another patient died 176 months later after a splenectomy, not because of lymphoma.

CONCLUSIONS

1. As a result of splenectomy in patients with DLBCL, the direct clinical and hematological effect occurred in 86.2% of cases: abdominal discomfort disappeared, hypersplenism was eliminated, hemolysis stopped, manifestations of RPH decreased.

2. In DLBCL patients who did not have concomitant immune cytopenias, the median survival after operation was 56.5 months, in contrast to 6.5 months in the presence of immune cytopenias.

3. The best results of splenectomy in DLBCL were recorded in patients with isolated spleen lesions: patients lived from 72 to 186 months.

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СПЛЕНЕКТОМІЯ У ЛІКУВАННІ ХВОРИХ НА ДИФУЗНУ В-ВЕЛИКОКЛІТИННУ ЛІМФОМУ ТА ЇЇ РЕЗУЛЬТАТИ

Ю.Л. Євстахевич[1], М.М. Семерак[1], І.Й. Євстахевич[1], Я.І. Виговська[1], Г.Б. Лебедь[2], І.М. Тумак[2], О.А. Петрончак[3], В.Є. Логінський[1]

[1]ДУ «Інститут патології крові та трансфузійної медицини НАМН України»

[2]Львівський національний медичний університет імені Данила Галицького

[3]Львівський онкологічний регіональний лікувально-діагностичний центр, Львів, Україна

Резюме. ***Мета:*** *проаналізувати безпосередні та віддалені результати спленектомії при дифузній В-великоклітинній лімфомі і на основі цього уточнити показання до проведення спленектомії, хірургічну тактику та наслідки.* ***Об'єкт і методи:*** *серед 114 спленектомій у хворих на неходжкінські лімфоми виконано 29 спленектомій при дифузній В-великоклітинній лімфомі (ДВКЛ). Серед них було 15 чоловіків та 14 жінок віком від 21 до 75 років (медіана 57 років). Показаннями до спленектомії при ДВКЛ були: спленомегалія, лейкопенія, імунна тромбоцитопенія, аутоімунна гемолітична анемія, регіонарна портальна гіпертензія, відсутність діагнозу. Результати спленектомії оцінювали безпосередньо після видалення селезінки (на 14–16-й день) за описаними у літературі критеріями і у віддалений період. Статистичну обробку проводили за допомогою пакета програм Statistica for Windows 6.0 (StatSoft, USA). Параметричні дані подавали як медіану (мінімум-максимум) [нижній-верхній квартилі]. Загальну виживаність хворих визначали за методом Каплана — Мейєра та описували як медіану виживаності (нижній-верхній квартилі), оцінювали також 3- і 5-річну виживаність, будуючи таблиці кумулятивного дожиття. Криві виживаності порівнювали за допомогою log-rank критерію і F-критерію Кокса.* ***Результати:*** *спленектомія виявилася ефективною у 25 (86,2%) хворих на ДВКЛ: ліквідовано абдомінальний дискомфорт, анемію, лейкопенію, при супутній аутоімунній гемолітичній анемії припинився гемоліз, а при імунній тромбоцитопенії збільшилася або нормалізувалася кількість тромбоцитів та зник геморагічний синдром. Безпосередньо після спленектомії помер один пацієнт. Рання післяопераційна летальність після спленектомії у хворих на ДВКЛ становила 3,4%. При аналізі віддалених результатів спленектомії у хворих на ДВКЛ встановлено, що медіана виживаності за оцінкою кривої Каплана — Мейєра становила 31,9 міс (термін спостереження 1,0–192,0 міс, нижній-верхній квартилі 5,6–72,5 міс) з 3-річною кумулятивною виживаністю — 48,7% хворих і з 5-річною — 32,9%. У пацієнтів із супутніми імунними цитопеніями медіана виживаності становила 6,5 міс на противагу 56,5 міс за їх відсутності. Різниця між групами була високозначущою — $p < 0,01$ за log-rank критерієм і F-критерієм Кокса. Багатофакторний аналіз методом регресії за Коксом засвідчив, що, окрім супутньої імунної цитопенії, незалежним предиктором нижчої виживаності є більш раннє настання рецидивів; вік і тривалість хвороби не впливали на виживаність.* ***Висновки:*** *у результаті спленектомії у хворих на ДВКЛ безпосередній клініко-гематологічний ефект наступив у 86,2% випадків. У пацієнтів із ДВКЛ, які не мали супутніх імунних цитопеній, медіана загальної виживаності після операції становила 56,5 міс, проте при наявності цитопеній дорівнювала лише 6,5 міс. Найкращі результати спленектомії при ДВКЛ зафіксовано у хворих з ізольованим ураженням селезінки: пацієнти жили від 72 до 186 міс.*

Ключові слова: неходжкінська лімфома, спленектомія, дифузна В-великоклітинна лімфома, аутоімунна гемолітична анемія, імунна тромбоцитопенія.

Correspondence:
Yevstakhevych Yu.L.
45 General Chuprynky Str., Lviv 79044
State Institution «Institute of Blood Pathology and Transfusion Medicine»
E-mail: msemerak@ukr.net

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