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ABSTRACT

CLINICAL AND INSTRUMENTAL CHARACTERISTICS OF PATIENTS WITH TYPE B DISSECTION OF THE DESCENDING THORACIC AORTA

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Introduction. Aortic dissection (AD) is a disease associated with high mortality. This condition occurs due to a disruption in the structure of the aorta inner lining; blood penetrates into the thickness of the wall and dissects its inner and outer layers, forming an additional intravascular channel (false lumen). The most common classifications of AD are: DeBakey classification – dissecting aortic aneurysm is classified into 3 types depending on the origination of dissection and its duration; and the Stanford anatomical classification dividing AD into type A and type B. Despite the fact that this disease was introduced into clinical practice by Laennec back in 1819, the accumulation of knowledge regarding optimal methods of diagnosis and treatment of type B dissection was very slow and the management of this cohort of patients still remains quite controversial.

The objective of our study was to analyze the features of clinical, laboratory and instrumental data of patients with dissection of the descending thoracic aorta (type B) under different treatment methods.

Materials and Methods. This retrospective study included adult patients (≥18 years) who were hospitalized to the State Institution "Heart Institute of the Ministry of Health of Ukraine" between 2018 and 2024 for the descending thoracic aorta dissection. The main parameters evaluated were anthropometric data, demographic characteristics, medical history, comorbidities, laboratory data, and instrumental research results.

Results. The study included 70 patients: 40 of them (group A) had underwent thoracic endovascular aneurysm repair (TEVAR) with best medical therapy (BMT) and 30 of them (group B) had been

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assigned best medical therapy (BMT) according to standard treatment methods. A typical profile of patients with descending thoracic aortic dissection in both groups was represented by a middle-aged or elderly man with concomitant arterial hypertension.

In patients of group A as compared to group B, we observed a significantly higher (by 16.7%) creatinine level (p=0.044); a significantly lower (by 11.7%) glomerular filtration rate (78.9±21.7 ml/min versus 88.1±22.8 ml/min, p=0.033); pleural effusion was more frequent by 18.33% (10 (25.0%) versus 2 (6.67%), p=0.044). The following parameters were also found to be higher: the frequency of dissection spreading to the abdominal aorta (by 25.0%), the frequency of intramural hematoma (by 35.0%), the maximum diameter of the false lumen (by 30.9%, p=0.001). On the contrary: the maximum diameter of the true lumen was found to be smaller by 6.22% (p=0.031) compared to group B patients.

Conclusions. Our study provides a better understanding of the clinical profile and prognosis in patients with type B aortic dissection under different treatment methods.

Keywords: aortic dissection type B, TEVAR, best medical therapy, aortic aneurism, atherosclerosis, health-related quality of life, coronary heart disease.

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КЛІНІКО-ІНСТРУМЕНТАЛЬНА ХАРАКТЕРИСТИКА ПАЦІЄНТІВ З РОЗШАРУВАННЯМ НИЗХІДНОГО ВІДДІЛУ ГРУДНОЇ АОРТИ ТИПУ В

Вступ. Розшарування аорти (РА) (дисекція) – це захворювання, що пов'язане з високою летальністю. Стан, коли внаслідок порушення структури внутрішньої оболонки аорти кров проникає в товщу стінки з розшаруванням внутрішнього і зовнішнього її шарів, формуванням додаткового внутрішньосудинного каналу (несправжнього просвіту). Найбільш поширені класифікації РА: за Дебейкі (DeBakey) – розшаровуюча аневризма аорти розподіляється на 3 типи залежно від початку розшарування та його тривалості і анатомічна класифікація Стенфорда (Stanford) з розподілом РА на тип А та тип В. Незважаючи на те, що дане захворювання введене у клінічну практику Лаєннеком ще у 1819 році, накопичення знань щодо оптимальних методів діагностики та лікування РО, в тому числі, дисекції типу В, відбувалося дуже повільно і ведення даної когорти пацієнтів все ще залишається доволі контраверсійним.

Метою нашого дослідження було проаналізувати особливості клініко-лабораторних та інструментальних даних пацієнтів з розшаруванням низхідного відділу грудної аорти (тип В) при різних методах лікування.

Матеріали та методи. В проведене ретроспективне дослідження включені дорослі пацієнти (від 18 років), які були госпіталізовані у Державну установу «Інститут серця Міністерства охорони здоров'я» в період з 2018 року по 2024 рік з приводу розшарування низхідного відділу грудної аорти.

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Основними параметрами, які оцінювалися, виступали антропометричні дані, демографічні характеристики, дані анамнезу, коморбідність, дані лабораторних показників та результати інструментальних досліджень.

Результати. У дослідження включено 70 пацієнтів, 40 з яких (група А) методом лікування вибрано та проведено ендоваскулярне протезування аорти (TEVAR) з оптимальною медикаментозною терапією (ОМТ), та 30 з яких (група Б) методом лікування вибрана та проведена оптимальна медикаментозна терапія (ОМТ) згідно стандартів лікування. Типовим профілем пацієнтів з розшаруванням низхідного відділу грудної аорти в обох групах виступали чоловіки середнього та літнього віку з супутньою артеріальною гіпертензією.

В пацієнтів групи А, у порівнянні з групою В, виявлений на 16,7% достовірно вищій рівень креатиніну (p=0,044), достовірно нижча (на 11,7%) швидкість клубочкової фільтрації (78,9±21,7 мл/хв проти 88,1±22,8 мл/хв, p=0,033), наявність плеврального випоту частіше на 18,33% (10 (25,0%) проти 2 (6,67%), p=0,044; також виявились вищими: частота розповсюдження розшарування на черевну аорту на 25,0%, на 35,0% частота наявності інтрамуральної гематоми, на 30,9% максимальний діаметр хибного просвіту (p=0,001), навпаки: на 6,22% виявлений нижчим максимальний діаметр справжнього простору (p=0,031) в порівнянні з пацієнтами групи Б.

Висновки. Наше дослідження забезпечує краще розуміння клінічного профілю та прогнозу у пацієнтів із розшаруванням аорти типу В при різних методах лікування.

Ключові слова: розшарування аорти типу В, TEVAR, оптимальна медикаментозна терапія, аневризма аорти, атеросклероз, пов'язана зі здоров'ям якість життя, ішемічна хвороба серця.

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INTRODUCTION / ВСТУП

Aortic dissection is a catastrophic cardiovascular disease associated with high mortality [1, 2, 3]. This condition occurs due to a disruption in the structure of the aorta inner lining; blood penetrates into the thickness of the wall and dissects its inner and outer layers, forming an additional intravascular channel (false lumen) [4, 5]. According to the most common DeBakey classification, dissecting aortic aneurysm is classified into 3 types depending on the origination of dissection and its duration.

- Type I — the dissection originates in the ascending part and extends to the thoracic and abdominal parts of the aorta (50%);
- Type II — the dissection is limited only to the ascending part of the aorta (30%);
- Type III — the dissection originates at the beginning of the descending aorta and may involve its abdominal segment (20%).

Since the management for types I and II are similar, the Stanford anatomical classification is currently widespread:

a) type A — proximal or ascending type (DeBakey types I and II),
b) type B — distal or descending (DeBakey type III).

Although the disease was first described in the medical literature more than two centuries ago, the accumulation of knowledge regarding optimal methods of diagnosis and treatment of type B dissection was very slow during the second half of the twentieth century. Moreover, even with the emergence of new diagnostic methods and treatment strategies for aortic

dissection, the management of this cohort of patients still remains quite controversial [6, 7].

To clarify current practice patterns and outcomes of aortic dissection, the International Registry of Acute Aortic Dissection (IRAD) was established in 1996 [8]. Thus, according to the IRAD analysis, the use of percutaneous interventions, such as aortic fenestration or stent graft placement, is steadily increasing and is performed as often as open surgery [9].

It is worth noting that the size of the aortic dissection significantly affects the patient's prognosis and treatment. In particular, the study by DeBakey M.E. et al. found that lesions limited to the descending aorta (type B) are usually associated with better survival rate compared to lesions of the ascending aorta [10].

Available evidence and guidelines for the management of patients with descending thoracic aortic dissection recommend endovascular or surgical intervention over medical therapy for most patients [11, 12]. At the same time, the choice of treatment method in patients with ascending aortic dissection should be based on the individual clinical characteristics.Thus, as noted by a number of studies, the clinical presentation of the disease, diagnostic imaging techniques, treatment strategies, including factors influencing the use of these strategies, and hospital outcomes of patients with descending thoracic aortic dissection in the modern era are still not fully understood [13–18, 26].

Table 1 – Baseline parameters of the study groups

Parameter	Group A (n=40)	Group B (n=30)	p
Age, years	54 (45;65)	59 (50;66)	0.198
Males, n (%)	35 (87.5%)	21 (70.0%)	0.070
BMI, kg/m^2	28.3±3.70	27.1±3.47	0.157
Body surface area, m^2	1.91±0.13	1.87±0.14	0.277
NYHA class, n (%) - I - II - III	 7 (17.5%) 20 (50.0%) 13 (32.5%)	 8 (26.7%) 16 (53.3%) 6 (20.0%)	0.428
HF, n (%) - I - IIA - IIB	 19 (47.5%) 15 (37.5%) 6 (15.0%)	 14 (46.7%) 13 (43.3%) 3 (10.0%)	0.945
Smoking, n (%)	17 (42.5%)	11 (36.7%)	0.622
History of cardiac surgery, n (%)	3 (7.50%)	4 (13.3%)	0.421
Comorbidities			
AH, n (%) - 0 - 1 - 2 - 3	 6 (15.0%) 7 (17.5%) 24 (60.0%) 3 (7.50%)	 9 (30.0%) 6 (20.0%) 13 (43.3%) 2 (6.67%)	0.428
Arrhythmias, n (%)	8 (20.0%)	6 (20.0%)	1.000
CHD, n (%)	13 (32.5%)	9 (30.0%)	0.824
History of MI, n (%)	2 (5.00%)	1 (3.33%)	0.194
History of CVA, n (%)	3 (7.50%)	3 (10.0%)	0.712
COPD, n (%)	5 (12.5%)	3 (10.0%)	0.745
DM, n (%)	11 (27.5%)	8 (26.7%)	0.938
Peripheral artery disease, n (%)	15 (37.5%)	17 (56.7%)	0.111
CRF, n (%)	4 (10.0%)	3 (10.0%)	1.000
Obesity, n (%)	8 (20.0%)	8 (26.7%)	0.511
Marfan syndrome, n (%)	4 (10.0%)	1 (3.33%)	0.284

Note. BMI – body mass index; HF – heart failure; AH – arterial hypertension; CHD – ischemic heart disease; MI – myocardial infarction; CVA – cerebrovascular accident; COPD – chronic obstructive pulmonary disease; DM – diabetes mellitus; CRF – chronic renal failure

The objective of our study was to analyze the features of clinical, laboratory and instrumental data of patients with dissection of the descending thoracic aorta under different treatment methods.

MATERIALS AND METHODS

The study was approved by the ethics committee of the Shupyk National Healthcare University of Ukraine. This study was designed in accordance with the recommendations of «STrengthening the Reporting of OBservational studies in Epidemiology» (STROBE)**.**

Patient characteristics

This retrospective study included adult patients (≥18 years) who were hospitalized to the State Institution "Heart Institute of the Ministry of Health of Ukraine" between 2018 and 2024 for the descending thoracic aorta dissection. Exclusion criteria were additional concomitant cardiac surgical interventions; age younger than 18 years; decompensated diabetes mellitus.

Data collection

The main parameters assessed were anthropometric data (body mass index, body surface area), age, heart failure severity, comorbidity, medical history, laboratory parameters (biochemical test), and results of invasive and instrumental studies (coronary angiography, echocardiography, computed tomography.

Statistical analysis

The study results were presented as arithmetic mean (M) ± standard deviation (SD). In case of non-normal distribution of results, data were presented as median (Me) and 1st (Q25) and 3rd (Q75) quartiles – Me (Q25; Q75). With a normal distribution of data, the Student's t-test was used to determine the statistical significance of statistical indicators; otherwise, the non-parametric Mann-Whitney U-test was used. For analysis of categorical variables in both groups, Pearson's chi-square test or Fisher's exact test (where appropriate) was used. Differences at $p < 0.05$ (95.5%) were considered significant. To analyze the obtained data, we used SPSS Statistics v.27 statistical data processing program.

RESULTS

Among the 83 case histories selected for the study, 13 were excluded upon detailed analysis. In particular, in 2 cases, the medical history did not reflect all the necessary parameters for the study; in 7 cases, the treatment for dissection of the descending thoracic aorta was performed together with other cardiac surgical interventions, and in 4 patients decompensated diabetes mellitus was present.

Depending on the treatment method for descending thoracic aortic dissection, all patients were divided into two groups:

- group A (n=40) – patients who had been initially assigned thoracic endovascular aneurysm repair (TEVAR) with best medical therapy (BMT);
- group B (n=30) – patients who had been initially assigned BMT.

A detailed analysis of baseline parameters of the study groups is given in Table 1.

Further detailed analysis of the age structure of patients with descending thoracic aortic dissection revealed that there were 17.5% fewer elderly people in group A compared to group B (p=0.038) (Table 2).

Table 2 – Distribution of patients depending on age structure

Age	Group A (n=40)	Group B (n=30)	P
Young age, n (%)	8 (20.0%)	2 (6.67%)	0.038
Middle age, n (%)	23 (57.5%)	16 (53.33%)	
Elderly age, n (%)	9 (22.5%)	12 (40.0%)	

Patients in group A complained of pain behind the sternum and in the back by 16.67% more often than in group B (p=0.039) (Table 3).

Table 3 – Complaints upon admission among patients of the study groups, n (%)

Parameter	Group A (n=40)	Group B (n=30)	P
Elevated blood pressure, n (%)	31 (77.5%)	19 (63.3%)	0.309
Shortness of breath on exertion, n (%)	10 (25.0%)	3 (10.0%)	0.110
Shortness of breath at rest, n (%)	2 (5.00%)	0 (0.00%)	0.214
Chest and back pain, n (%)	8 (20.00%)	1 (3.33%)	**0.039**
Abdominal pain, n (%)	2 (5.00%)	2 (6.67%)	0.766
Lower extremity pain, n (%)	5 (12.5%)	1 (3.33%)	0.175
Palpitations, n (%)	5 (12.5%)	3 (10.0%)	0.745
Cardiac malfunction, n (%)	4 (10.0%)	1 (3.33%)	0.284
Lower extremity swelling, n (%)	12 (30.0%)	6 (20.0%)	0.343

Further, the study analyzed the medications that patients took before hospitalization (Table 4).

The majority of patients in both groups received pharmacological therapy (35 (87.5%) and 19 (63.3%)), with patients from group A being significantly more (by 24.2%) adherent to therapy compared to group B (p=0.018) (Table 4).

Regarding the analysis of laboratory parameters, patients in group A had a significantly higher creatinine level (by 16.7%) compared to group B (p=0.044), which could be due to the higher frequency of the spread of the descending thoracic aortic dissection to the abdominal aorta and renal arteries, respectively (Fig. 1).

Table 4 – Pharmacological therapy before admission

Parameter	Group A (n=40)	Group B (n=30)	P
Pharmacological therapy, n (%)	35 (87.5%)	19 (63.3%)	0.018
Beta-blockers, n (%)	23 (57.5%)	14 (46.7%)	0.369
Alpha-blockers, n (%)	4 (10.0%)	1 (3.33%)	0.238
Ca^{2+} channel blockers, n (%)	15 (37.5%)	11 (36.7%)	0.943
ACE inhibitors, n (%)	29 (72.5%)	12 (40.0%)	0.006
AT-II receptor inhibitors, n (%)	11 (27.5%)	7 (23.3%)	0.152
Diuretics, n (%)	17 (42.5%)	11 (36.7%)	0.152
Nitrates, n (%)	2 (5.00%)	1 (3.33%)	0.622
Antiplatelet agents, n (%)	9 (22.5%)	3 (10.0%)	0.169
Statins, n (%)	4 (10.0%)	1 (3.33%)	0.238
Glucose-lowering drugs, n (%)	6 (15.0%)	2 (6.67%)	0.278
Two or more drugs, n (%)	28 (70.0%)	16 (53.3%)	0.153

Note. ACE – angiotensin-converting enzyme; AT-II – angiotensin II

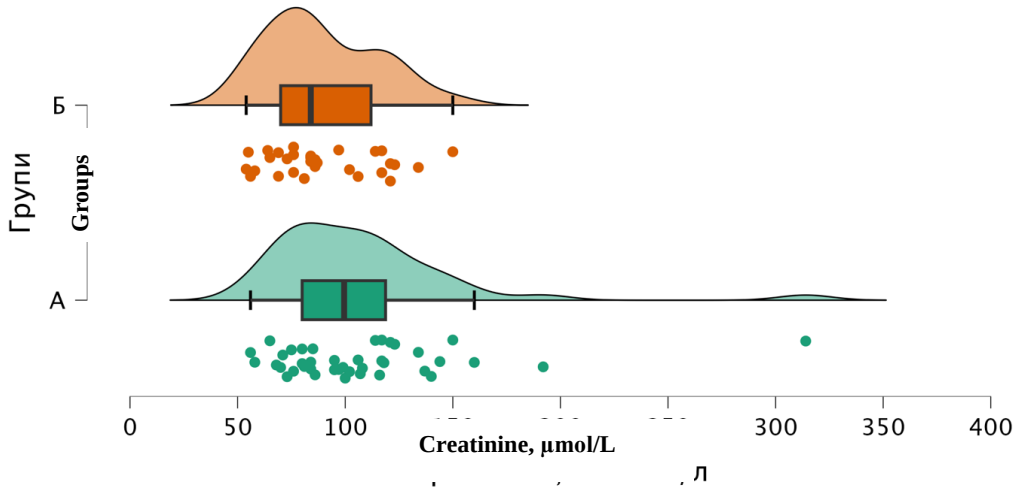

Figure 1 – Average creatinine level in the study groups, µmol/l

In addition, patients in group A had a significantly lower (by 11.7%) glomerular filtration rate compared to patients in group B (78.9±21.7 ml/min vs. 88.1±22.8 ml/min, p=0.033) (Fig. 2).

Further, a comparative analysis of the results of invasive and instrumental studies was carried out. In particular, coronary angiography did not reveal a significant difference in coronary artery disease frequency between both groups (p>0.05) (Table 5).

A similar pattern was also observed with regard to EchoCG. Thus, a detailed analysis of Echo-CG indicators among patients in the study groups did not reveal any significant changes between the study groups (Table 6).

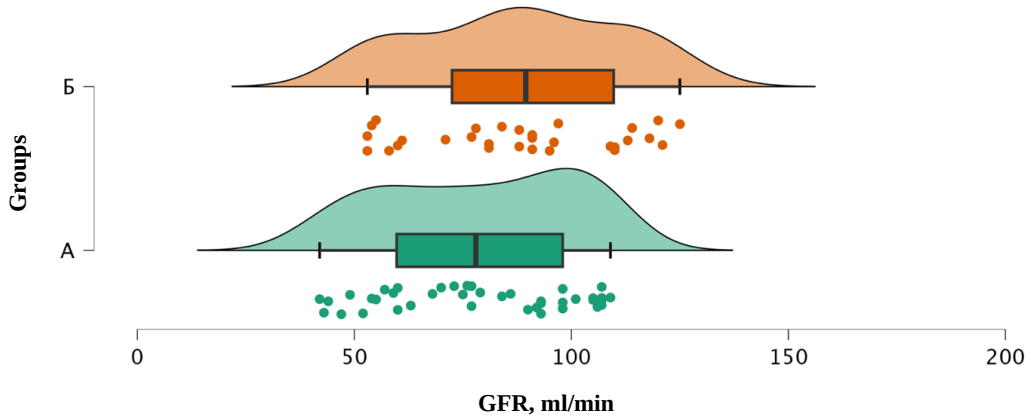

Figure 2 – Glomerular filtration rate in the study groups, ml/min

Note. GFR – glomerular filtration rate

Table 5 – Coronary angiography results in study groups

Parameter	Group A (n=40)	Group B (n=30)	P
Left main coronary artery, n (%)	1 (2.50%)	0 (0.00%)	0.383
Left circumflex coronary artery, n (%)	6 (15.0%)	5 (16.7%)	0.850
Anterior interventricular branch of the left coronary artery, n (%)	6 (15.0%)	4 (13.3%)	0.844
Right coronary artery, n (%)	4 (10.0%)	3 (10.0%)	1.000

Table 6 – Quantitative echocardiographic assessment of cardiac cavities

Parameter	Group A (n=40)	Group B (n=30)	P
LVEF, %	56.7±8.90	57.6±8.50	0.681
LV stroke volume, ml	73.1±15.5	68.4±15.6	0.209
LV end diastolic volume, ml	114.2±31.1	111.4±25.9	0.688
LV end-diastolic volume index, ml/m^2	59.9±16.2	59.9±15.3	0.996
LV end-diastolic dimension, cm	4.73±0.98	4.65±0.82	0.702
LV end-systolic volume, ml	38.2±11.6	36.8±10.3	0.605
LV end-systolic volume index, ml/m^2	20.1±6.31	19.7±5.65	0.807
LA volume, ml	35.1±9.27	35.3±8.84	0.925
LA volume index, ml/m^2	18.5±5.14	18.9±4.71	0.732
IVS thickness, cm	0.98±0.19	0.89±0.22	0.285
LVPW thickness, cm	0.83±0.11	0.81±0.08	0.402

Note. LVEF – left ventricular ejection fraction; LV – left ventricle; LA – left atrium; IVS – interventricular septum; LVPW – left ventricle posterior wall

Further distribution and comparison of patients by LVEF also did not reveal a significant difference between the study groups (p=0.508); moreover, in the majority of patients in both groups, LVEF was preserved and amounted to more than 40% (38 (95.0%) cases in group A and 28 (96.67%) cases in group B) (Table 7).

It is also worth noting that according to Echo-CG data, patients from group A had pleural effusion significantly more often (by 18.33%) compared to patients from group B (10 (25.0%) vs. 2 (6.67%), p=0.044).

Table 7 – Distribution of patients in the study groups depending on the left ventricular ejection fraction

LVEF	Group A (n=40)	Group B (n=30)	P
>50%	32 (80.0%)	27 (90.0%)	0.508
40–50%	6 (15.0%)	2 (6.67%)	
<40%	2 (5.00%)	1 (3.33%)	

Note: LVEF – left ventricular ejection fraction

In order to accurately visualize the pathology of the descending thoracic aorta, computed tomography (CT) was used in the study. According to the results of the analysis, the spread of dissection to the abdominal aorta was significantly more frequent in group A (by 25%, p=0.016) than in group B (Table 8).

At the same time, in patients of group B, the dissection was limited to the thoracic aorta by 29.2% more often (p=0.008) compared to group A (Table 8).

Interestingly, patients from group A had intramural hematoma by 35.0% more often compared to group B (p=0.001) (Table 8).

Also, in patients of group A, the maximum diameter of the false lumen was significantly larger by 30.9% compared to group B (p=0.001) (Table 8). As for the maximum diameter of the true lumen, patients of group A had significantly smaller diameter (by 6.22%) compared to group B (p=0.031) (Table 8).

Table 8 – Contrast-enhanced CT in the study groups

Parameter	Group A (n=40)	Group B (n=30)	P
Dimensions of the descending thoracic aorta, mm			
Proximal, mm	47.5±4.55	46.5±4.30	0.101
Middle, mm	42.4±5.03	41.7±3.98	0.132
Distal, mm	37.8±4.92	36.9±4.05	0.173
Dissection, n (%)			
Aortic arch involved	3 (7.50%)	2 (6.67%)	0.894
Limited to the thoracic aorta	23 (57.5%)	26 (86.7%)	0.008
Abdominal aorta involved	14 (35.0%)	3 (10.0%)	0.016
Iliac arteries involved	3 (7.50%)	1 (3.33%)	0.457
Intramural hematoma	18 (45.0%)	3 (10.0%)	0.001
False lumen			
Diameter of the false lumen, cm	4.04±0.79	2.79±0.92	0.001
Atherosclerosis, n (%) - present - absent	 8 (20.0%) 32 (80.0%)	 7 (23.3%) 23 (76.7%)	0.736
Thrombosis of the false lumen, n (%) - patent lumen - partial thrombosis	 27 (67.5%) 13 (32.5%)	 24 (80.0%) 6 (20.0%)	0.244
Maximum diameter of the true lumen, cm	3.17±0.76	3.38±0.97	0.031

In addition, the study analyzed the degree of operative risk according to EuroSCORE II among patients of the study groups, but did not find any significant difference between the groups (4.44±1.37% versus 4.30±1.49%, p=0.684) (Fig. 3).

DISCUSSION

Overall, in both study groups, the typical profiles of patients with descending thoracic aortic dissection were middle-aged and elderly men with concomitant arterial hypertension; the results obtained in the study were fully consistent with the IRAD data. Thus, according to this registry, a typical profile of a patient with type B dissection is an elderly, hypertensive man who complains of sudden chest and/or back pain. Most patients with type B dissection are hemodynamically stable, without developing hypotension or spinal cord ischemia; even pulse deficit is rare [9].

According to the 2024 European Society of Cardiology guidelines, the treatment of complicated descending thoracic aortic dissection is either urgent TEVAR or surgery as an addition to medical therapy, while medical therapy itself has been the mainstay of

treatment for uncomplicated descending thoracic aortic dissection [7, 13, 27].

At the same time, each of these methods is characterized by a number of disadvantages. In particular, early mortality after surgery for acute aortic dissection is about 10%, even in cardiac surgical centers with significant experience, and there remains a significant number of patients who die before reaching the operating room [19]. As for TEVAR, this treatment method has been successfully applied for complicated descending thoracic aortic dissection and is the standard treatment choice if there are no clear indications for open surgery (lower limb arterial disease, severe tortuosity of the iliac arteries, acute aortic arch angle, and absence of the proximal aorta) [20]. However, data from the European Clinical Registry suggested that a 30-day mortality rate after TEVAR equaled 8%, with an 8% risk of stroke and a 2% risk of spinal cord ischemia in 50 patients with acute descending thoracic aortic dissection, which raises questions about the safety of early TEVAR [21].

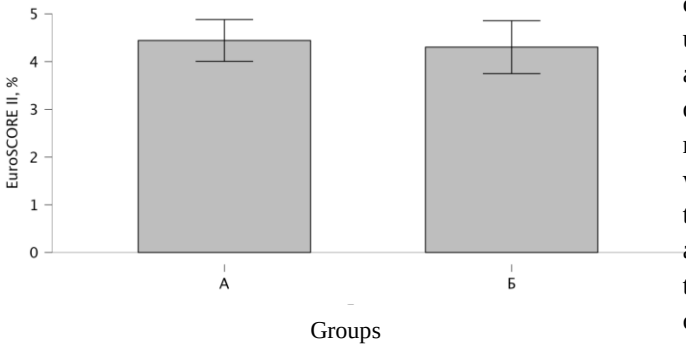

Figure 3 – Operative risk assessment using EuroSCORE II in the study groups, %

In turn, drug treatment of uncomplicated dissection of the descending thoracic aorta, according to various studies, was characterized by 30-day mortality from the moment of hospitalization ranging from 6 to 10%. The 1-year, 4-year, and 5-year survival rates were 81.6%, 72.3%, and 60%, respectively [22]. At the same time, after 5 years, an expansion of the false lumen up to 50% was observed [23].

It is worth noting that drug treatment aims to achieve good control of heart rate and blood pressure using calcium channel blockers, angiotensin receptor blockers, and statins. These drugs have a positive effect and help to achieve a reduction in aortic enlargement and complications. β-blockers and angiotensin receptor blockers additionally help to reduce aortic enlargement in the cohort of patients with Marfan syndrome [24]. α1-adrenergic and nonspecific β-blockers can be used as alternative medications. Patients should be closely monitored, and hypertension control is a priority in these patients [25].

Given this, further studies are needed on risk stratification by assessing factors associated with increased mortality for appropriate management of patients with descending thoracic aortic dissection.

RESEARCH LIMITATIONS

This is a retrospective and single-center study with a relatively small number of patients, therefore it is prone to bias.

CONCLUSIONS

Our study provides a better understanding of the clinical profile of patients with type B aortic dissection under different treatment methods. In particular, among patients with descending thoracic aortic dissection who had undergone endovascular aortic repair together with the best medical therapy, there was a significantly lower number of elderly patients; they had complaints of chest and back pain more often and used medications more frequently; in addition, they had a worse renal function, significantly higher creatinine levels and lower glomerular filtration rate, more complications in the form of pleural effusion and a higher frequency of dissection spreading to the abdominal aorta; CT data revealed a higher frequency of intramural hematoma, a higher maximum diameter of the false lumen, and a lower maximum diameter of the true lumen compared to patients from the other group.

Given this, further studies are needed on risk stratification by assessing factors associated with increased mortality for appropriate management of patients with descending thoracic aortic dissection.

AUTHOR CONTRIBUTIONS / ВКЛАД АВТОРІВ

All authors substantively contributed to the drafting of the initial and revised versions of this paper. They take full responsibility for the integrity of all aspects of the work.

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CONFLICT OF INTEREST / КОНФЛІКТ ІНТЕРЕСІВ

The authors declare no conflict of interest.

ARTIFICIAL INTELLIGENCE DISCLOSURE / ВИКОРИСТАННЯ ШТУЧНОГО ІНТЕЛЕКТУ

The authors did not use artificial intelligence (AI)-based technologies when writing and editing the manuscript.

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