BRIEF ARTICLE

Multicenter Pilot Registry of Spontaneous Coronary Artery Dissection in Argentina

Registro piloto multicéntrico de disección coronaria espontánea en Argentina

EDWIN A RODRÍGUEZ ARIAS[1], SANDRA PATRICIA SWIESZKOWSKI[1], GERMÁN CAFFARO[2], IVÁN GUEVARA[2], ÁLVARO F VARGAS PELÁEZ[3], JUAN R. MIERES[4], MIRZA RIVERO[5], GASTÓN PROCOPIO[6], CAMILA CORREA SADOUET[7], CAMILA GALLARDO[7], MATÍAS RODRÍGUEZ GRANILLO[7]

ABSTRACT

Background: Spontaneous coronary artery dissection (SCAD) is a major cause of acute myocardial infarction (AMI) in young adults, especially in women between the fourth and sixth decade of life who have no cardiovascular risk factors. Considering the low incidence of SCAD and the lack of data in our setting, we decided to create a multicenter registry of the clinical and evolutionary characteristics of a population with this disease.
Objectives: The aim of this study was to describe the clinical characteristics, treatment, and mid- and long-term outcomes of a population of patients with SCAD in our country, where the disease was previously poorly described.
Methods: This was an observational and prospective study conducted in four private medical centers and two university hospitals. During the two years of recruitment (January 2023-January 2025), 26 patients with SCAD defined by an angiographic study were registered. Various parameters were analyzed, including age, sex, cardiovascular risk factors, triggering factors, psychosocial and physical stressors, comorbidities, laboratory findings, angiographic characteristics, disease resolution, recurrence, and evolution up to one year after discharge.
Results: Twenty-six patients with SCAD were included and analyzed over a two-year period. Twenty-two (84.6%) were women, and median age was 47 years (interquartile range, IQR, 42–56.5). Hypertension was the most prevalent cardiovascular risk factor, present in 9 patients (34.6%). Fibromuscular dysplasia was sought in 15.4% of cases, with no positive results. There were no cases related to pregnancy or the postpartum period. Stress, whether physical or emotional, was the triggering factor in 61% of patients (19% and 41%, respectively). All patients presented with acute coronary syndrome: 57.7% corresponded to non- ST-segment elevation acute coronary syndrome, and the remaining to ST-segment elevation acute coronary syndrome. The most affected vessel was the left anterior descending artery (61.5%), with type 2A dissection as the most common pattern found in 14 patients (53.8 %) and multiple dissections in 2 cases. Intracoronary ultrasound was used in only one case. Fifteen patients (57.7%) were treated conservatively, with beta-blockers in 100% of cases and aspirin in 92%. Percutaneous angioplasty was performed in 12 patients (46.1%). During hospitalization, two patients developed clinical and dynamic changes in the electrocardiogram, and only one underwent emergency angioplasty. No deaths or re-infarctions occurred during one-year follow-up.
Conclusion: Spontaneous coronary artery dissection occurs in young women, mainly as non-ST-segment elevation myocardial infarction. Stress was identified as the triggering cause in most cases. In this first pilot registry in our country, the clinical characteristics and treatment designs observed are consistent with those reported in international cohorts.

Key words: Acute myocardial infarction in young people - Fibromuscular dysplasia -Acute coronary syndrome

RESUMEN

Introducción: La disección coronaria espontánea (DCE) es una causa importante de infarto agudo de miocardio (IAM) en adultos jóvenes, especialmente en mujeres entre la cuarta y sexta década de la vida que carecen de factores de riesgo cardiovascular. Considerando la baja incidencia de DCE y la ausencia de datos en nuestro medio, decidimos generar un registro multicéntrico de las características clínicas y evolutivas de una población con esta enfermedad.

Rev Argent Cardiol 2025;93:446-451. https://doi.org/10.7775/rac.v93.i6.20942

Received: 10/10/2025 – *Accepted:* 11/17/2025

Correspondence: Interventional Cardiology Service, Sanatorio Otamendi, Azcuénaga 870, Buenos Aires, Argentina
Email: mrodriguezgranillo@gmail.com. X: @matiasrg

https://creativecommons.org/licenses/by-nc-sa/4.0/

©Revista Argentina de Cardiología

[1] Clinical Cardiology Service, Hospital de Clínicas José de San Martín, Buenos Aires, Argentina.
[2] Clinical Cardiology Service, Sanatorio Julio Méndez, Buenos Aires, Argentina.
[3] Clinical Cardiology Service, Memorial Healthcare System, Hollywood, Florida, United States of America.
[4] Interventional Cardiology Service, Sanatorio Las Lomas, Buenos Aires, Argentina.
[5] Cardiology Service, Hospital Universitario Cemic, Buenos Aires, Argentina.
[6] Clinical Cardiology Service, Fundación Favaloro, Buenos Aires, Argentina.
[7] Interventional Cardiology Service, Sanatorio Otamendi, Buenos Aires, Argentina.

Objetivos: Describir las características clínicas, el tratamiento y los resultados a mediano y largo plazo de una población de pacientes con DCE en nuestro país, donde la enfermedad no había sido bien descrita previamente.
Material y métodos: Estudio observacional y prospectivo llevado a cabo en 4 centros médicos privados y dos hospitales universitarios. Durante los 2 años de reclutamiento (enero 2023-enero 2025) se registraron 26 pacientes con DCE definida por un estudio angiográfico. Se analizaron diversos parámetros, incluyendo edad, sexo, factores de riesgo cardiovascular, factores desencadenantes, estresores psicosociales y físicos, comorbilidades, hallazgos de laboratorio, características angiográficas, resolución de la enfermedad, recurrencia y evolución hasta el año del alta.
Resultados: Se incluyeron y analizaron veintiséis pacientes con DCE durante un período de dos años. Veintidós (84,6 %) eran mujeres, y la mediana de edad 47 años (rango intercuartílico, RIC, 42-56,5). La hipertensión fue el factor de riesgo cardiovascular más común, presente en 9 pacientes (34,6 %). Se buscó displasia fibromuscular en el 15,4 % de los casos, sin resultados positivos. No hubo casos relacionados con el embarazo o puerperio. El estrés, físico o emocional, fue el factor desencadenante en el 61 % de los pacientes (19 % y 41 % respectivamente). Todos los pacientes se presentaron como síndrome coronario agudo; un 57,7 % correspondió a síndrome coronario agudo sin elevación del segmento ST, y el resto a síndrome coronario agudo con elevación del segmento ST. La arteria más afectada fue la descendente anterior (61,5 %). La disección tipo 2A fue la más comúnmente encontrada, en 14 pacientes (53,8 %); en 2 casos se encontraron múltiples disecciones. Se utilizó ultrasonido intracoronario en solo un caso. Respecto del tratamiento, 15 pacientes (57,7 %) fueron tratados de forma conservadora, de ellos el 100 % recibió betabloqueantes y el 92 % aspirina. Se sometieron a angioplastia percutánea 12 pacientes (46,1 %). Durante la internación, 2 pacientes evolucionaron con cambios clínicos y dinámicos en el electrocardiograma y en uno solo se realizó angioplastia de urgencia. En el año de seguimiento no hubo muertes ni reinfartos.
Conclusión: La DCE se presenta en mujeres jóvenes, principalmente como infarto sin elevación del segmento ST. Se identificó el estrés como causa desencadenante en la mayoría de los casos. En este primer registro piloto de nuestro país, las características clínicas y los patrones de tratamiento observados se alinean con los informados en cohortes internacionales.

Palabras clave: Disección coronaria espontánea - Infarto agudo de miocardio en jóvenes - Displasia fibromuscular - Síndrome Coronario Agudo

INTRODUCTION

Spontaneous coronary artery dissection (SCAD) is increasingly recognized as a cause of acute coronary syndromes (ACS) not due to plaque rupture or erosion or coronary embolization, especially in young women. It represents between one-third and one-quarter of acute myocardial infarctions in women under 50 years of age in various international cohorts, and between 15% and 20% of infarctions in pregnant women and during the postpartum period. (1-5)

Spontaneous coronary artery dissection is a condition not fully understood, although the formation in the arterial wall of an intramural hematoma caused by a tear in the intima or spontaneous hemorrhage of the vasa vasorum, not related to atherosclerosis, iatrogenesis, or trauma, is the most widely accepted pathophysiology. (1-4) Timely diagnosis is a predictor of outcome and guides definitive treatment according to the type of dissection, and unlike atherosclerotic infarction, a conservative management takes precedence over interventional treatment in most cases, the latter being reserved only for cases of acute artery occlusion, or those in which there is hemodynamic instability. (5-8)

There are several registries from developed countries that reflect specific aspects of the development, approach, mortality, and SCAD recurrence. However, this is not the case in the Latin American population, especially in Argentina. (5-7)

This article presents the first multicenter SCAD experience in Argentina, including patients from both public and private healthcare systems from 2023 to 2025. The purpose of this first stage was to describe demographic data, clinical presentation, hospital outcomes, established treatment, and one-year clinical follow-up in order to understand the approaches to this pathology in our country and thus standardize diagnostic and therapeutic criteria.

METHODS

This was an observational, descriptive, retrospective, multicenter study conducted in two public hospitals and four private medical centers in the Autonomous City of Buenos Aires from January 2023 to January 2025, with the aim of obtaining local data on an underdiagnosed and increasingly prevalent disease. Participating centers had to meet physical and human standards to ensure definitive diagnosis of the disease. All patients were prospectively included since 2023 in two centers and retrospectively in the rest of the participating centers. The diagnosis and classification of SCAD was according to the Yip-Saw et al. classification and the modification proposed by a group of national researchers. (7,8) The definitive diagnosis was agreed upon by the heads of the interventional cardiology and coronary care units at each participating center. Patients with iatrogenic dissection or diagnostic doubts were excluded. Following established evidence, intravascular imaging was not used as a diagnostic method. (1-4) Due to the expected small sample size, a descriptive analysis was performed of the baseline demographic, clinical, and angiographic characteristics, as well as the therapy used during hospitalization and follow-up treatment. The presence of precipitating and predisposing factors was also analyzed. In addition, unexpected events such as death, reinfarction, unexpected revascularization, coronary dissection recurrence, chest pain during follow-up, and follow-up with noninvasive imaging (coronary computed tomography) were evaluated.

All patients included in the registry signed an informed consent form and agreed to participate in the analysis. Identifying data were anonymized at each center and were known only by the local investigators, responsible for telephone or in person follow-up of each patient. The analysis was conducted in accordance with the Declaration of Hel-

sinki and its amendments, (9) the guidelines for good clinical research practices, and the Personal Data Protection Act No. 25236. (10)

Excel software (Microsoft Windows, USA) was used to transfer the study variables and perform the descriptive analysis.

RESULTS

Twenty-six patients diagnosed with SCAD at two public hospitals and four private medical centers in the Autonomous City of Buenos Aires were included over a two-year period (Figure 1). Most patients were women (84.6%). Median age was 47 years (interquartile range, IQR, 42-56.5), and hypertension was the most common cardiovascular risk factor, present in nine patients (34.6%), followed by dyslipidemia in six (23.1 %) and type 2 diabetes mellitus in three (11.5%). The rest of the clinical characteristics, in addition to the predisposing and precipitating factors identified, are described in Table 1, which shows emotional stress as the main precipitating factor present in eleven patients (42.3%).

The presence of muscular fibrodysplasia was explored in three patients using non-invasive imaging, with no pathological findings. None of the patients with a history of pregnancy reported complications during pregnancy.

The clinical presentation was with typical chest pain in 100% of patients, and in seven cases (26.9%) it was accompanied by dyspnea. Non-ST-segment elevation acute coronary syndromes (NSTEACS) were the most frequent electrocardiographic presentation, in 57.7% (n=15) of cases. Table 2 shows the symptoms and baseline diagnosis on admission. The most commonly affected vessel was the left anterior descending artery (n= 16, 61.5%), and the most frequent type of dissection was type 2A in fourteen patients (53.8%), with multiple dissections identified in two cases. The rest of the angiographic characteristics are presented in Table 3, together with the motility and function characteristics of the baseline echocardiogram. Concentric, septal, and apical ventricular hypertrophy was detected in four patients (15.3%).

Fifteen patients (57.7 %) were initially treated conservatively. Beta-blockers were used in 100% of cases, and aspirin in 92%. Among this group, one patient underwent revascularization during hospitalization due to hemodynamic instability. A total of twelve patients (46.1 %), underwent revascularization, eleven at baseline and one during hospitalization, all by angioplasty, with 1.9 stents per patient.

Twenty-three patients (88.4%) received statins at discharge. Among patients who received conservative treatment without stent implantation, 35.7% were discharged with dual antiplatelet therapy, 92.8% with at least one antiplatelet agent, and one patient was anticoagulated.

Regarding events, there were no deaths and one emergency revascularizations during hospitalization.

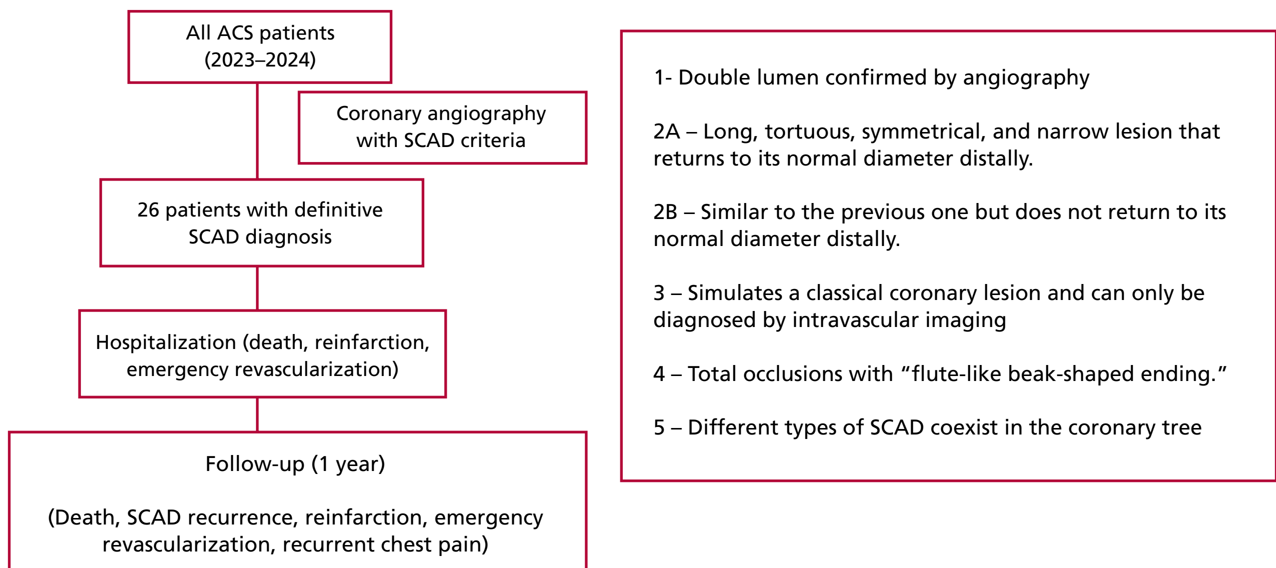
During follow-up, four patients (15.4 %) reported recurrent chest pain, and in three cases, anatomical evaluation was again performed, in two by coronary angiography and in one by computed tomography, without evidence of new dissections.

DISCUSSION

We present the first Argentine SCAD registry. Of note, a significant effort was made to recruit as many centers as possible and, hence patients with this rare disease.

Similarly, as in large global series, most cases were

Figure 1. Study design



ACS: acute coronary syndrome; SCAD: spontaneous coronary artery dissection

Table 1. Demographic, clinical, and angiographic characteristics.

Variable	
Female gender (%)	84.6
Age, years, mean (SD)	48.4 (10.3)
Cardiovascular risk factors (%)	
Smoking	23.1
Hypertension	34.6
Dyslipidemia	23.1
Diabetes	11.5
Family history of coronary heart disease, (%)	3.8
Weight, kg, mean (SD)	74.5 (15.6)
Height, cm, mean (SD)	155 (6.9)
Previous pregnancies, (%)	30.7
Predisposing factors (%)	
Current pregnancy	0
Postpartum period	0
Rheumatological diseases	11.5
Precipitating factors (%)	
Physical stress	19.2
Emotional stress	42.3
Toxic substances	7.7

SD: standard deviation

Table 2. Admission symptoms and electrocardiographic findings

Symptoms (%)	
Typical chest pain	10
Nausea/ vomiting	15.4
Dyspnea	26.9
Sudden death	3.8
Admission diagnosis (%) STEACS	42.3
NSTEACS	57.7

STEACS: ST-segment elevation acute coronary syndrome; NSTEACS: Non-ST-segment elevation acute coronary syndrome

perimenopausal women with high emotional stress. This could be explained by some genetic and conformational differences in the arterial walls of men and women, in addition to apparent hormonal modifications in coronary estrogen and progestogen receptors which trigger mechanisms that alter vascular architecture both in pregnancy and perimenopause and produce conformational changes predisposing to SCAD. (8, 11,12)

This disease accounts for 1 to 40 out of 1000 angiographies performed per center, and in turn explains 2 to 4% of all SCADs and up to one-third of AMIs in the perimenopausal female population. (13-16)

There are different genetic variants in collagen fibers that are associated with higher risk of developing the disease. (15-20) Although fibromuscular dysplasia is the arteriopathy and genetic condition most closely associated with SCAD development, (2,9) the search for this disease was very poor in our series and it was possible to perform angiotomography of intra-abdominal and cervical vessels only in 3 patients, without any positive results. Although pregnancy (especially in the third trimester and in the immediate postpartum) is associated with SCAD, it did not manifest in our series. (19)

In all the series presented, including ours, SCAD develops in populations with few or no cardiovascular risk factors. In the group analyzed, the most relevant cardiovascular risk factor was hypertension, analogous to classic coronary artery disease, and in line with other published series. (18-20)

When analyzing the presentation on admission, and comparable to large international series, more than half of the cases evidenced NSTEACS (5,6,11,18-20).

Also, similar to global reports, the most commonly involved artery was the left anterior descending artery, and, importantly, two patients presented with multiple types of dissection in different vascular territories. Despite the incidence of intravascular imaging in these patients is low, both in this registry and worldwide, there are recommendations that encourage its use in cases where there are diagnostic doubts. (1-3, 16)

There are some points worth highlighting in our registry. On the one hand, in our series, 1 in 5 patients continued to experience persistent pain after discharge, in line with other registries. (5,6,11,18-20) On the other hand, there was no evidence of consensus on antiplatelet therapy in patients treated conservatively, either in terms of selection (aspirin or clopidogrel), dosage (single or dual antiplatelet therapy), or duration.

Among the study limitations, the small sample size stands out. Nevertheless, different therapeutic

Table 3. Angiographic characteristics and modified Yip-Saw classification.

Affected artery (%)	
Right coronary artery	7.7
Left coronary trunk	0
Left anterior descending artery	61.5
Circumflex artery	38.4
Intravascular imaging (%)	7.7
Classification (%)	
Type I	11.5
Type 2	73.1
Type 2A	53.8
Type 2B	19.2
Type 3	11.5
Type 4	7.7
Type 5	7.7
Baseline echocardiogram (%)	
No wall motility disorders	19
Segmental hypokinesia	47.6
Akinesia	28.6
Ventricular hypertrophy	14.3
Preserved LVEF	76.2

LVEF: left ventricular ejection fraction.

approaches were evidenced, especially during follow-up, as well as the lack of screening for fibrodysplasia, which allows us to outline guidelines for possible position documents and recommendations from our Society.

CONCLUSION

Spontaneous coronary artery dissection occurs predominantly in women between the 4th and 5th decades of life without cardiovascular risk factors, generally as acute coronary syndrome and with emotional stress as the main triggering factor. Treatment was conservative except in cases of hemodynamic instability, and the results during hospitalization and at one year of follow-up were good. The lack of consensus on antithrombotic treatment in this group of patients should be noted.

Conflicts of interest

None declared.

(See authors' conflict of interests forms on the web).

REFERENCES

1. Longo D, Kim E. Spontaneous coronary artery dissection. N Engl J Med 2020;383:2358-70. https://doi.org/10.1056/NEJMra2001524.

2. Hayes S, Esther K, Saw J, Adlam D, Arslanian C, Economy K, et al. Spontaneous coronary artery dissection: Current state of the science: A scientific statement from the American Heart Association. Circulation [Internet]. 2018;137:e523–57. https://doi.org/10.1161/CIR.0000000000000564

3. Kovacevic M, Jarakovic M, Milovancev A, Cankovic M, Petrovic M, Bjelobrk M, et al. Contemporary review on spontaneous coronary artery dissection: insights into the angiographic finding and differential diagnosis. Front Cardiovasc Med. 2023 Nov 27;10:1278453. https://doi.org/0000-0002-5156-3810

4. Saw J. Coronary angiogram classification of spontaneous coronary artery dissection. Catheter Cardiovasc Interv 2014;84:1115-22. https://doi.org/10.1002/ccd.25293

5. Faden MS, Bottega N, Benjamin A, Brown RN. A nationwide evaluation of spontaneous coronary artery dissection in pregnancy and the puerperium. Heart 2016;102:1974-9. https://doi.org/10.1136/heartjnl-2016-309403

6. Smilowitz NR, Gupta N, Guo Y, Zhong J, Weinberg CR, Reynolds HR, et al. Acute myocardial infarction during pregnancy and the puerperium in the United States. Mayo Clin Proc 2018;93:1404-14. https://doi.org/10.1016/j.mayocp.2018.04.019

7. Saw J, Starovoytov A, Aymong A, Inohara T, Alfadhel M, McAlister C et al. Canadian Spontaneous Coronary Artery Dissection Cohort Study. J Am Coll Cardiol 2022;80:1585–97. https://doi.org/10.1016/j.jacc.2022.08.759

8. Rodríguez M, Correa C, Rosales M. Anterior infarction as the clinical presentation of a 53-year-old woman with spontaneous coronary artery dissection. Revista Argentina de Cardioangiología Intervencionista 2022;13:192-5. https://doi.org/10.30567/RACI/202204/0192-0195

9. World Medical Association. World Medical Association Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects. JAMA. 2013;310:2191–4. https://doi.org/10.1001/jama.2013.281053

10. Law 25236 Protection of personal data. https://servicios.infoleg.gob.ar/infolegInternet/anexos/60000-64999/64790/norma.htm

11. Combaret N, Gerbaud E, Dérimay F, Souteyrand G, Cassagnes L, Bouajila S, et al. National French registry of spontaneous coronary artery dissections: prevalence of fibromuscular dysplasia and genetic analyses. EuroIntervention 2021;17:508-15. https://doi.org/10.4244/EIJ-D-20-01046.

12. Crousillat D, Sarma A, Wood M, Naderi S, Leon K, Gibson CM, et al. Spontaneous Coronary Artery Dissection: Current Knowledge, Research Gaps, and Innovative Research Initiatives: JACC Advances Expert Panel. JACC Adv 2024;3: 101385 (12_Part_1). https://doi.org/10.1016/j.jacadv.2024.101385

13. Hayes S, Tweet M, Adlam D, Kim E, Gulati R, Price J, et al. Spontaneous coronary artery dissection. J Am Coll Cardiol 2020;76:961–84. https://doi.org/10.1016/j.jacc.2020.05.084

14. Boulmpou A, Kassimis G, Zioutas D, Meletidou M, Mouselimis D, Tsarouchas A, et al. Spontaneous coronary artery dissection (SCAD): Case Series and Mini Review. Cardiovasc Revasc Med 2020;21:1450-

6. https://doi.org/10.1016/j.carrev.2020.03.013
15. McAlister C, Yi M, Adamson P, Troughton R, Rhodes M, Blake J, et al. Trends in the detection, management, and 30-day outcomes of spontaneous coronary artery dissection: A six-year, New Zealand center experience. Heart Lung Circ 2021;30:78-85. https://doi.org/10.1016/j.hlc.2020.06.020
16. Adlam D, Alfonso F, Maas A, Vrints C; Writing Committee. European Society of Cardiology, acute cardiovascular care association, SCAD study group: a position paper on spontaneous coronary artery dissection. Eur Heart J 2018;39:3353-68. https://doi.org/10.1093/eurheartj/ehy080
17. Zekavat SM, Chou EL, Zekavat M, Pampana A, Paruchuri K, Lino Cardenas CL, et al. Fibrillar Collagen Variants in Spontaneous Coronary Artery Dissection. JAMA Cardiol 2022;7:396-406. https://doi.org/10.1001/jamacardio.2022.0001
18. Dang Q, Othman F, Sheahen B, Marschner S, Psaltis P, Al-Lamee RK, et al. Regional and temporal variations of spontaneous coronary artery dissection care according to consensus recommendations: a systematic review and meta-analysis. Open Heart 2023;10:e002379. https://doi.org 10.1136/openhrt-2023-002379.
19. Chi G, Najafi H, Montazerin SM, Lee JJ. Factors associated with recurrent spontaneous coronary artery dissection: a systematic review and meta-analysis. Coron Artery Dis 2022;33:566-73. https://doi.org/10.1097/MCA.0000000000001168
20. Saw J, Humphries K, Aymong E, Sedlak T, Prakash R, Starovoytov A, et al. Spontaneous coronary artery dissection: clinical outcomes and risk of recurrence. J Am Coll Cardiol. 2017;70:1148–58. https://doi.org 10.1016/j.jacc.2017.06.053.