

Appropriateness of myocardial revascularization in patients with significant stenosis of the left main coronary artery: retrospective analysis from University Clinical Centre of the Republic of Srpska

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Abstract

Introduction. When considering revascularization modalities, for patients with stable presentation, with appropriate coronary anatomy suitable for both PCI and CABG and low predicted surgical mortality, the recommendations are specifically focused on patients with main stem stenosis. In these cases, patients should be individually assessed according to the complexity of the anatomical disease, as determined by the anatomical SYNTAX score. In the last few years, the results of four randomized studies have been published comparing PCI with newer-generation DES and CABG in patients with left-main stenosis. The latest 2024 ESC guidelines for the management of chronic coronary syndromes recommend CABG over PCI when the anatomical SYNTAX score exceeds 22, as indicated by recent trials. The aim of this study was to examine whether the indications for CABG or PCI, as determined by the well-informed intuitive judgment of PCI operators in everyday clinical practice, align with the treatment recommendations outlined in the recently published ESC guidelines.

Methods. Between January 1, 2023, and December 31, 2023, patients were recruited from the University Clinical Centre of the Republic of Srpska in Banja Luka, Bosnia and Herzegovina, utilizing the hospital information system. The study included consecutive patients diagnosed with significant unprotected left main coronary artery disease ($\geq 50\%$ diameter stenosis) confirmed through angiography, who did not exhibit major hemodynamic instability and received PCI at our facility. Patients were divided into two groups, based on the anatomical SYNTAX score i.e. those with SYNTAX ≤ 22 and those with SYNTAX > 22 .

Results. Following inclusion criteria, a total number of 38 patients were included in the analysis. The included patients had either previously diagnosed coronary artery disease or a high suspicion of coronary artery disease. The majority of the participants were male, with an average age of 65.6 years, with the youngest participant being 31 years old and the oldest 83 years old. A large majority of both sexes suffered from arterial hypertension, dyslipidemia, and type 2 diabetes. Participants in whom SYNTAX score was ≤ 22 were younger ($p=0.049$) and had less complex coronary artery disease i.e. fewer MEDINA 1,1,1 ($p<0.001$) with less stents implanted ($p=0.040$). Over the course of one year of follow-up, three patients passed away, two of whom had a SYNTAX score exceeding 22. Additionally, two patients were lost to follow-up.

Conclusion. The present study demonstrates that an intuitive decision-making process by experienced interventional cardiologists for choosing the optimal myocardial revascularization method for the individual patient with left main stenosis led to a discordance of the definitely chosen methods vs. the recommended method based on the SYNTAX score and ESC guidelines. This discordance between the recommended and the finally performed revascularization strategy led to a higher short-term mortality.

Key words myocardial revascularization; SYNTAX score; left main stenosis

Introduction

If significant stenosis of the left main coronary artery is confirmed, the “VA” study (the first conducted on American veterans) showed a huge benefit from surgical revascularization¹. The same was confirmed in 1994 by Salim Yusuf in a combined meta-analysis of seven randomized studies, where a reduction in mortality with coronary artery bypass grafting (CABG) was shown by as much as 68% over five years and 33% after ten years². On the other hand, the first percutaneous coronary intervention (PCI) on the main main was performed in 1978 at the University Hospital in Frankfurt³. The decision on the choice of method for revascularization in significant stenosis of the main main has been the subject of many randomized studies and has a special place in the recommendations of the most important cardiovascular associations^{4,5}.

Today, adequate information for patients is the cornerstone for choosing the form of myocardial revascularization. The 2018 European Society of Cardiology (ESC) guidelines recommend that patients be informed about the short- and long-term benefits and risks of PCI and CABG, with mandatory information on local experience⁶. Such decision-making necessarily and explicitly takes into account the patient's preference for one or another of the available treatment options. It is recommended that local teams develop institutional protocols to implement the appropriate strategy in accordance with current guidelines⁷. In PCI centers without cardiac surgery, it is recommended to establish institutional protocols with partner institutions that provide cardiac surgery. When considering revascularization modalities, for patients with stable presentation, with appropriate coronary anatomy suitable for both PCI and CABG and low predicted surgical mortality, the recommendations are specifically focused on patients with main stem stenosis. In these cases, patients should be individually assessed according to the complexity of the anatomical disease, as determined by the anatomical SYNTAX score⁸. In the last few years, the results of four randomized studies have been published comparing PCI with newer-generation DES and CABG in patients with main-stem stenosis⁹⁻¹². The latest 2024 ESC guidelines for the management of chronic coronary syndromes recommend CABG over PCI when the anatomical SYNTAX score exceeds 22, as indicated by recent trials¹³.

Every interventional and clinical cardiologist faces challenges in determining whether CABG or PCI is the appropriate choice, particularly when complications arise that may undermine their confidence in their knowledge and clinical abilities. Frequently, patients pose the question, “Doctor, what would you do if you were in my position?” As a result, cardiologists are currently endeavoring to identify the most effective myocardial revascularization approach for their patients. The aim of this study was to examine whether the indications for CABG or PCI, as determined by the well-informed intuitive judgment of PCI operators in everyday clinical practice, align with the treatment recommendations outlined in the recently published ESC guidelines.

Methods

Study Population

Between January 1, 2023, and December 31, 2023, patients were recruited from the University Clinical Centre of the Republic of Srpska in Banja Luka, Bosnia and Herzegovina, utilizing the hospital information system. The study included consecutive patients diagnosed with significant unprotected left main coronary artery disease ($\geq 50\%$ diameter stenosis) confirmed through angiography, who did not exhibit major hemodynamic instability and received PCI at our facility. The research protocol received approval from the appropriate local ethics committee and adheres to the Declaration of Helsinki. Participants did not sign an informed consent form to participate in the study, due to nature of the study. Baseline angiographic and demographic data were systematically recorded in a specialized database. Exclusion criteria encompassed patients with ST segment elevation myocardial infarction, those with a history of CABG or PCI, individuals with terminal illnesses and a life expectancy of less than one year, patients requiring concurrent cardiac surgery, and those lacking indications for myocardial revascularization. All-cause mortality was determined through telephone follow-ups and/or Mortality Registries. For deceased patients, we examined death certificates to ascertain the causes of death, specifically focusing on cardiovascular mortality.

The anatomical SYNTAX Score has been thoroughly detailed in prior literature⁵. In summary, this score is obtained by aggregating the individual scores assigned to each lesion, which is characterized by a 50% diameter stenosis in vessels larger than 1.5 mm. For each patient, the calculation of the anatomical SYNTAX Score was performed based on the initial diagnostic angiogram, utilizing the SYNTAX Score calculator accessible online (www.syntaxscore.com). Patients were divided into two groups, based on the anatomical SYNTAX score i.e. those with SYNTAX ≤ 22 and those with SYNTAX > 22 .

Statistical Analysis

Categorical variables are represented as numerical values and percentages, with comparisons made through the chi-square test. Continuous variables are reported as means accompanied by standard deviations (SD) or as medians with first and third quartiles (Q1-Q3), and comparisons are conducted using either the Student's T test or the Mann-Whitney U test, depending on the distribution of the data and the number of groups involved. The analysis of differences in revascularization modality recommendations was carried out using a chi-square test. Outcome differences were assessed using Kaplan-Meier estimates at a one-year follow-up, with comparisons made via the log-rank test. All statistical analyses were conducted using IBM SPSS Statistics for Macintosh, version 21.0 (IBM, Armonk, NY, USA).

Table 1. Overview of basic data of the included patients

Data on the participants	Total (n=38)	SYNTAX ≤ 22 (n=21)	SYNTAX > 22 (n=17)	p
Age (years), mean ± SD	65.6 ± 11.1	63.14 ± 10.9	69.53 ± 7.5	0.049*
Male, number (%)	30 (78.95)	19 (90.47)	11 (64.7)	0.053**
Hypertension, number (%)	30 (78.95)	15 (71.4)	15 (88.2)	0.206**
Dyslipidemia, number (%)	27 (71.1)	12 (57.1)	15 (88.2)	0.036**
Type 2 diabetes mellitus, number (%)	19 (50)	9 (42.86)	10 (58.8)	0.328**
Obesity, number (%)	3 (7.89)	2 (9.5)	1 (5.88)	0.679**
Atrial fibrillation, number (%)	4 (10.5)	4 (19.05)	0	0.057**
Creatinine (μmol/l), mean ± SD	94.56 ± 23.7	94.88 ± 26.9	93.53 ± 20.9	0.877*
Renal insufficiency	7 (18.4)	5 (23.8)	2 (11.76)	0.341**
COPD, number (%)	2 (5.26)	0	2 (11.76)	0.106**
Smoking, number (%)	15 (39.47)	10 (47.6)	5 (29.4)	0.254**
LVEF (%), mean ± SD	46.22 ± 11.1	48.33 ± 13.1	42.94 ± 9.7	0.177*
Acute coronary syndrome, number (%)	16 (42.1)	9 (42.86)	7 (41.2)	0.917**
Use of intracoronary imaging, number (%)	6 (15.8)	4 (19.01)	2 (11.76)	0.540**
Numer of stents implanted, number (%)	1 2 3	24 (63.2) 10 (26.3) 4 (10.5)	7 (41.2) 7 (41.2) 3 (17.6)	0.040**
POT, number (%)	22 (57.9)	13 (61.9)	9 (52.9)	
Ostial lesion, number (%)	5 (13.2)	4 (19.01)	1 (5.9)	
MEDINA 1,1,1, number (%)	15 (39.5)	3 (14.28)	10 (58.8)	< 0.001**
SYNTAX (points). mean ± SD	22.11 ± 7.0	16.71 ± 3.5	28.76 ± 3.8	< 0.001*

COPD = chronic obstructive pulmonary disease; LVEF = left ventricular ejection fraction; POT = proximal optimisation technique; SD = standard deviation; IQR = interquartile range. *Student t-test **Chi-square test

Patients were divided into two groups, based on the anatomical SYNTAX score i.e. those with SYNTAX ≤ 22 and those with SYNTAX > 22. Participants in whom SYNTAX score was ≤ 22 were younger (p=0.049) and had less complex coronary artery disease i.e. fewer MEDINA 1,1,1 (p< 0.001) with less stents implanted (p=0.040).

Results

Following inclusion criteria, a total number of 38 patients were included in the analysis. The included patients had either previously diagnosed coronary artery disease or a high suspicion of coronary artery disease. The majority of the participants were male, with an average age of 65.6 years, with the youngest participant being 31 years old and the oldest 83 years old. A large majority of both sexes suffered from arterial hypertension, dyslipidemia, and type 2 diabetes (**Table 1**).

Over the course of one year of follow-up, three patients passed away, two of whom had a SYNTAX score exceeding 22. Additionally, two patients were lost to follow-up.

Discussion

The main findings of the present study are as follows: 1. Our mortality data showed overall mortality rate of 7.9% which is in accordance with previously published trials; 2. In the total population, the clinical judgement of PCI-operators deviated in 44.7% of patients (17 out of 38) from the revascularization modality recommended by the ESC guidelines; 3. In those patients discordantly treated with PCI the 1-year mortality was higher compared to concordantly PCI-treated patients.

The NOBLE trial¹¹ involved the randomization of 1,201 patients in a 1:1 ratio to receive either PCI or CABG. After a follow-up period of five years, the primary outcome

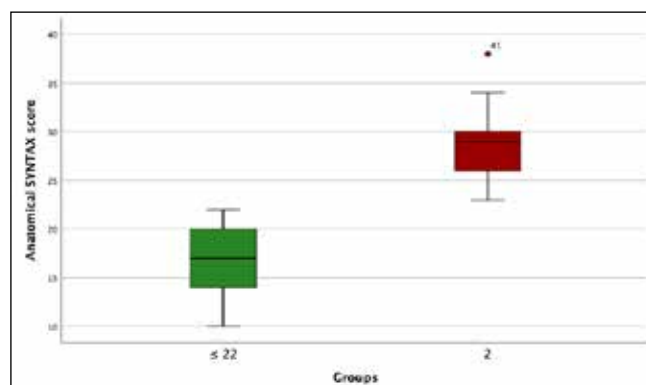


Figure 1. Distribution of anatomical SYNTAX score across the groups

— a composite measure including death, nonprocedural myocardial infarction, the necessity for repeat revascularization, and stroke — was observed in 28% of patients who underwent PCI compared to 19% of those who received CABG (p=0.002). The individual components of this primary outcome included all-cause mortality (9% for both groups vs. 7.9% in our population), non-procedural myocardial infarction (8% after PCI versus 3% after CABG), repeat revascularization (17% after PCI compared to 10% after CABG), and stroke (4% after PCI versus 2% after CABG). In the EXCEL trial (12), 1,905 patients with low to moderate anatomic complexity main-stem disease were randomized in a 1:1 manner to either PCI or CABG. At the five-year mark, the primary outcome—a

composite of death, stroke, or myocardial infarction—was recorded in 22.0% of patients following PCI and 19.2% following CABG ($p=0.13$). The specific components of this primary outcome included all-cause mortality (13.0% for PCI versus 9.9% for CABG), stroke (2.9% after PCI compared to 3.7% after CABG), and myocardial infarction (10.6% after PCI versus 9.1% after CABG). Additionally, secondary outcomes related to ischemia were more prevalent in the PCI group than in the CABG group (16.9% versus 10.0%). However, when applying the universal definition of myocardial infarction instead of the study protocol definition, the overall incidence of myocardial infarction at five years was reported as 9.6% for PCI and 4.7% for CABG. The PRECOMBAT trial¹⁰ involved the randomization of 600 patients to receive either PCI or CABG. The primary outcome, which was a composite measure including death, myocardial infarction, stroke, or ischemia-related revascularization, was observed in 29.8% of patients undergoing PCI compared to 24.7% of those receiving CABG, with the difference not reaching statistical significance (p not significant). The individual components of this primary outcome included all-cause mortality (14.5% for PCI versus 13.8% for CABG), myocardial infarction (3.2% for PCI versus 2.8% for CABG), stroke (1.9% for PCI versus 2.2% for CABG), and ischemia-related revascularization (16.1% for PCI versus 8.0% for CABG). In terms of secondary outcomes, which encompassed death, myocardial infarction, and stroke, these occurred in 18.2% of patients after PCI and 17.5% after CABG. The SYNTAX study⁹ randomized 1,800 patients diagnosed with new-onset three-vessel or main-stem disease, including 705 patients with main-stem stenosis. The primary endpoint assessed during the extended follow-up was the rate of all-cause mortality over a 10-year period. Follow-up data regarding vital status at the 10-year mark was complete for 93% of patients in the PCI cohort and 95% in the CABG cohort. Among those with main-stem stenosis, the mortality rate was 27% in the PCI group and 28% in the CABG group after 10 years. The SYNTAX score, which serves as an anatomical scoring system to assess the overall severity of coronary artery disease, plays a crucial role in risk stratification for patients undergoing percutaneous coronary intervention. However, it does not provide the same level of stratification for those undergoing cardiac surgical myocardial revascularization. A notable drawback of the SYNTAX score is its interobserver variability^{14,15,16}. Approximately 25% of the patients enrolled in the EXCEL study had a high score, which was used as an exclusion criterion. Furthermore, the NOBLE trial did not demonstrate any significant impact of the SYNTAX score on patient outcomes over a five-year follow-up period. Similarly, the PRECOMBAT trial reported no significant interactions regarding overall outcomes at the ten-year follow-up mark. The SYNTAX score 2, a model that integrates anatomical and clinical data pertaining to individual patients into a cohesive system, has recently undergone redevelopment and validation^{17,18}. This score has demonstrated satisfactory predictions for all-cause mortality over a four-year period, having been developed from the SYNTAX study

and subsequently validated externally. However, its ability to discriminate among patients in the EXCEL trial was found to be modest. The updated version, referred to as the SYNTAX score 2020, has been externally validated using a pooled dataset from the FREEDOM, PRECOMBAT, and BEST studies, showing acceptable predictions for all-cause mortality at ten years and improved predictions for major adverse events at five years. Further validation confirmed its acceptable discrimination capability for all-cause mortality at five years within a Japanese cohort of patients with main-stem stenosis. Nonetheless, there remains a scarcity of data supporting the application of the SYNTAX score 2 or SYNTAX score 2020 in decision-making for patients with main-stem stenosis. In cases where revascularization is indicated for patients with main-stem stenosis, the evidence suggesting that the SYNTAX score effectively identifies the most suitable candidates for PCI when CABG is an alternative is not robust. However, there is insufficient new evidence to warrant changes to the existing recommendations based on SYNTAX categories. Given its widespread acceptance among local teams, this score remains a crucial component of high-level evidence recommendations.

A significant dataset utilized in this analysis was a meta-analysis of individual patient data derived from the SYNTAX, PRECOMBAT, NOBLE, and EXCEL trials^{19,20}. The primary inclusion criteria for this meta-analysis encompassed randomized trials that evaluated the outcomes of patients undergoing PCI with DES compared to those receiving CABG, with a minimum follow-up period of five years. Notably, both the SYNTAX and PRECOMBAT studies also provided ten-year follow-up data. The principal outcome assessed in this review was five-year mortality. Secondary endpoints included cardiovascular mortality, spontaneous myocardial infarction, procedural myocardial infarction, stroke, and repeat revascularization, while various composite outcomes were reported as tertiary endpoints. The total number of patients included in the analysis was 4,394, with a mean age of 66 years. The female patient demographic constituted 23.3%, and the mean SYNTAX score was recorded at 25.0%, with 22.9% of participants exhibiting a SYNTAX score exceeding 33. The analysis revealed no statistically significant difference in five-year mortality rates between patients treated with PCI and those undergoing CABG (11.2% vs. 10.2%; $p = 0.33$). A comparable treatment effect was noted for ten-year mortality rates (22.4% vs. 20.4%; $p = 0.25$). Bayesian analysis indicated an 85.7% probability that the five-year mortality rate was higher for PCI compared to CABG; however, if such a difference exists, it is likely to be minimal, estimated at less than 1.0% over five years or less than 2% over ten years (i.e., $<0.2\%$ per year).

In the evaluated subgroups, the treatment effect remained consistent. The tertile SYNTAX score did not significantly influence the treatment effect concerning all-cause mortality, although a small number of patients had elevated SYNTAX scores. Likewise, when assessed as a continuous variable, the SYNTAX score did not serve as a significant modifier of the treatment effect for either all-cause mortality or cardiovascular death.

Study limitations

Our study has several limitations as well as strengths: (1) the relatively low number of patients from a single centre; (2) data collection, due to retrospective nature of our study, is limited by selection bias; (3) our study based, cannot assess other reasons of PCI-operators for decision making; (4) since this was not randomized study, it could not be taken care of possible confounders which may guide clinicians in the decision-making process, such as bleeding risk, frailty or socioeconomic reasons or patient's preferences.

Conclusions

The current research illustrates that the instinctive decision-making approach employed by seasoned interventional cardiologists in selecting the most suitable myocardial revascularization technique for patients with left main stenosis resulted in a discrepancy between the methods ultimately chosen and those advised according to the SYNTAX score and ESC guidelines. This divergence between the recommended and the executed revascularization strategy was associated with an increased short-term mortality rate.

References

- Peduzzi P, Detre K, Murphy ML, Thomsen J, Hultgren H, Takaro T. Ten-year incidence of myocardial infarction and prognosis after infarction. Department of Veterans Affairs Cooperative Study of Coronary Artery Bypass Surgery. *Circulation* 1991;83(3): 747-755.
- Yusuf S, Zucker D, Peduzzi P, et al. Effect of coronary artery bypass graft surgery on survival: overview of 10-year results from randomised trials by the Coronary Artery Bypass Graft Surgery Trialists Collaboration. *Lancet* 1994; 344:563.
- Conley MJ, Ely RL, Kisslo J, Lee KL, McNeer JF, Rosati RA. The prognostic spectrum of left main stenosis. *Circulation* 1978; 57(5): 947-952.
- Fihn SD, Blankenship JC, Alexander KP, et al. 2014 ACC/AHA/AATS/PCNA/SCAI/STS focused update of the guideline for the diagnosis and management of patients with stable ischemic heart disease: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines, and the American Association for Thoracic Surgery, Preventive Cardiovascular Nurses Association, Society for Cardiovascular Angiography and Interventions, and Society of Thoracic Surgeons. *J Am Coll Cardiol* 2014;64:1929.
- Writing Committee Members, Lawton JS, Tamis-Holland JE, et al. 2021 ACC/AHA/SCAI Guideline for Coronary Artery Revascularization: Executive Summary: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *J Am Coll Cardiol* 2022; 79:197.
- Neumann FJ, Sousa-Uva M, Ahlsson A, et al. 2018 ESC/EACTS Guidelines on myocardial revascularization. *Eur Heart J* 2019;40:87.
- Head SJ, Kaul S, Mack MJ, et al. The rationale for Heart Team decision-making for patients with stable, complex coronary artery disease. *Eur Heart J* 2013;34(32):2510-2518.
- Sianos G, Morel MA, Kappetein AP, et al. The SYNTAX Score: an angiographic tool grading the complexity of coronary artery disease. *EuroIntervention* 2005; 1:219.
- Morice MC, Serruys PW, Kappetein AP, et al. Outcomes in patients with de novo left main disease treated with either percutaneous coronary intervention using paclitaxel-eluting stents or coronary artery bypass graft treatment in the Synergy Between Percutaneous Coronary Intervention with TAXUS and Cardiac Surgery (SYNTAX) trial. *Circulation* 2010; 121:2645.
- Park DW, Ahn JM, Park H, et al. Ten-Year Outcomes After Drug-Eluting Stents Versus Coronary Artery Bypass Grafting for Left Main Coronary Disease: Extended Follow-Up of the PRECOMBAT Trial. *Circulation* 2020;141(18):1437-1446.
- Holm NR, Mäkilä T, Lindsay MM, et al. Percutaneous coronary angioplasty versus coronary artery bypass grafting in the treatment of unprotected left main stenosis: updated 5-year outcomes from the randomised, non-inferiority NOBLE trial. *Lancet* 2020; 395(10219):191-199.
- Stone GW, Sabik JF, Serruys PW, et al. Everolimus-Eluting Stents or Bypass Surgery for Left Main Coronary Artery Disease [published correction appears in *N Engl J Med* 2019;381(18):1789. doi: 10.1056/NEJMx190008.]. *N Engl J Med*. 2016;375(23): 2223-2235.
- Vrints C, Andreotti F, Koskinas KC, et al. 2024 ESC Guidelines for the management of chronic coronary syndromes. *Eur Heart J* 2024;45(36):3415-3537.
- Kappetein AP, Feldman TE, Mack MJ, et al. Comparison of coronary bypass surgery with drug-eluting stenting for the treatment of left main and/or three-vessel disease: 3-year follow-up of the SYNTAX trial. *Eur Heart J* 2011;32:2125.
- Mohr FW, Morice MC, Kappetein AP, et al. Coronary artery bypass graft surgery versus percutaneous coronary intervention in patients with three-vessel disease and left main coronary disease: 5-year follow-up of the randomised, clinical SYNTAX trial. *Lancet* 2013; 381:629.
- Thuijs DJFM, Kappetein AP, Serruys PW, et al. Percutaneous coronary intervention versus coronary artery bypass grafting in patients with three-vessel or left main coronary artery disease: 10-year follow-up of the multicentre randomised controlled SYNTAX trial. *Lancet* 2019; 394:1325.
- Escaned J, Banning A, Farooq V, et al. Rationale and design of the SYNTAX II trial evaluating the short to long-term outcomes of state-of-the-art percutaneous coronary revascularisation in patients with de novo three-vessel disease. *EuroIntervention* 2016;12(2):e224-e234.
- Farooq V, van Klaveren D, Steyerberg EW, et al. Anatomical and clinical characteristics to guide decision making between coronary artery bypass surgery and percutaneous coronary intervention for individual patients: development and validation of SYNTAX score II. *Lancet* 2013;381:639.
- Sabatine MS, Bergmark BA, Murphy SA, et al. Percutaneous coronary intervention with drug-eluting stents versus coronary artery bypass grafting in left main coronary artery disease: an individual patient data meta-analysis [published correction appears in *Lancet*. 2022 Apr 23;399(10335):1606. doi: 10.1016/S0140-6736(22)00701-2.] [published correction appears in *Lancet* 2022 Oct 15;400(10360):1304. doi: 10.1016/S0140-6736(22)01944-4.]. *Lancet* 2021;398(10318):2247-2257.
- Head SJ, Milojevic M, Daemen J, et al. Mortality after coronary artery bypass grafting versus percutaneous coronary intervention with stenting for coronary artery disease: a pooled analysis of individual patient data. *Lancet* 2018;391:939.

Sažetak

Ispravnost revaskularizacije miokarda kod pacijenata sa stenozom glavnog stabla: retrospektivna analiza Univerzitetskog Kliničkog centra Republike Srpske

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Uvod. Kada se razmatraju modaliteti revaskularizacije, za pacijente sa stabilnom prezentacijom, sa odgovarajućom koronarnom anatomijom pogodnom za PKI i CABG i niskim predviđenim hirurškim mortalitetom, preporuke su posebno usmjerene na pacijente sa stenozom glavnog stabla. U ovim slučajevima, pacijente treba individualno procijeniti prema složenosti anatomske bolesti, koja je određena anatomskim SYNTAKS skorom. U posljednjih nekoliko godina objavljeni su rezultati četiri randomizovane studije u kojima su poređeni PKI sa DES novije generacije i CABG kod pacijenata sa stenozom glavnog stabla. Najnovije ESC smjernice iz 2024. godine preporučuju CABG umjesto PKI kada anatomski SYNTAKS skor premaši 22. Cilj našeg istraživanja je bio da se ispita da li su indikacije za CABG ili PKI, kako je utvrđeno dobro informisanim intuitivnim prosuđivanjem operatera u svakodnevnoj kliničkoj praksi, usklađene sa preporukama za liječenje datim sa nedavno objavljenim ESC smjernicama.

Metode. U periodu od 1. januara 2023. do 31. decembra 2023. godine regrutovani su pacijenti iz Univerzitetskog kliničkog centra Republike Srpske u Banjoj Luci, Bosna i Hercegovina, korišćenjem bolničkog informacionog sistema. Studija je obuhvatila uzastopne pacijente sa dijagnozom značajne nezaštićene bolesti lijeve glavne koronarne arterije ($\geq 50\%$ stenoze prečnika) potvrđene angiografijom, koji nisu ispoljili veliku hemodinamsku nestabilnost i tretirani su sa PKI u našoj ustanovi. Pacijenti su podjeljeni u dvije grupe, na osnovu anatomske SYNTAKS skora, tj. oni sa SYNTAKSA ≤ 22 i oni sa SYNTAKSI > 22 .

Rezultati. Prateći kriterijume uključivanja, u analizu je uključeno ukupno 38 pacijenata. Uključeni pacijenti su imali ili ranije dijagnostikovanu koronarnu bolest ili visoku sumnju na koronarnu bolest. Većina učesnika bili su muškarci, prosječne starosti 65,6 godina, pri čemu je najmlađi učesnik imao 31 godinu, a najstariji 83 godine. Velika većina oba pola patila je od arterijske hipertenzije, dislipidemije i dijabetesa tipa 2. Učesnici kod kojih je SYNTAKS skor bio ≤ 22 bili su mlađi ($p=0,049$) i imali su manje složenu koronarnu bolest, odnosno manje MEDINA 1,1,1 ($p<0,001$) sa manje ugrađenih stentova ($p=0,040$). Tokom jedne godine praćenja, tri pacijenta su preminula, od kojih su dva imala SYNTAKS skor veći od 22. Pored toga, dva pacijenta su izgubljena iz praćenja.

Zaključak. Ova studija pokazuje da je intuitivan proces donošenja odluka iskusnih interventnih kardiologa za izbor optimalne metode revaskularizacije miokarda za pojedinačnog pacijenta sa stenozom glavnog stabla lijeve koronarne arterije u neskladu u odnosu na preporučenu metodu zasnovanu na SYNTAKS skoru i ESC smjernicama. Ovaj nesklad doveo je do većeg kratkotrajnog mortaliteta.

Glavne reči: revaskularizacija miokarda, SYNTAKS skor, stenoza glavnog stabla