

Coronary Artery Bypass Grafting Versus Percutaneous Coronary Interventions in Stable Patients with Three Vessel Coronary Artery Disease, Low Syntax Score and Impaired Systolic Function

HUSSEIN A. NOFAL, M.D.*; AHMED KAMEL ABDEL GHANY HASSAN, M.D.** and YOSRY M. THAKEB, M.D.*

The Departments of Cardiac Surgery and Cardiology**, National Heart Institute, Egypt*

Abstract

Background: There is no consensus regarding the selection of the coronary revascularization procedure either PCI or CABG, many publications have addressed this issue. Usually, complete revascularization with lesser morbidities and mortalities is the aim, however many scoring systems, predictors, and clinical factors changed the treatment strategies. Coronary atherosclerosis is a major worldwide health problem. In December 2020 the World Health Organization (WHO) stated that atherosclerosis is the main cause of death worldwide as it affects cerebral and coronary blood vessels causing fatal stroke and myocardial infarction. Treatment of coronary artery disease includes conservative medical therapy in mild non-obstructive coronary lesions and revascularization with Coronary artery bypass grafting or percutaneous coronary interventions in cases of severe coronary stenosis. In cases of severely stenotic multivessel coronary artery disease patients who have chronic coronary syndromes, revascularization with either percutaneous coronary intervention (PCI) or Coronary Artery Bypass Grafting (CABG) surgery is indicated. The European Society of Cardiology (ESC) /European Association of Cardiothoracic Surgery (EACTS) guidelines for coronary revascularization stated that in cases with low Syntax score less than 0 to 22, both PCI with multivessel stenting and CABG surgery are indicated with Class I, level of evidence A recommendation. Impaired left ventricular systolic function with an Ejection fraction below 40% favours CABG. Patients with stable coronary artery disease and low syntax scores may be treated by both treatment options. Although impaired systolic function favours CABG surgery, sometimes PCI is performed because of patient preference and/or Heart team discussion.

Aim of Study: In our study, we compared both treatment strategies CABG versus PCI in cases with chronic coronary syndromes who have significant three-vessel coronary artery disease, low Syntax score between 0-22 and impaired systolic function with left ventricular ejection fraction below 40%.

Patients and Methods: Our Patients with CAD were randomly assigned to PCI or CABG. This pre-specified analysis presents the 6 months outcomes of patients (n=80). There

were no major adverse cardiac and cerebrovascular events (MACCE) in both groups, surgery consumed more time performing their procedure, and ended up by a significantly better EF in the 6 months followup of the patients.

Results: It is a prospective study, where patients are divided into two groups: Group A consisted of 30 patients who were treated with Coronary artery bypass graft surgery (CABG), Group B consisted of 50 patients who were treated with Percutaneous coronary Intervention (PCI). The study endpoints were major Adverse Cardiovascular Events (Death, nonfatal stroke, nonfatal myocardial infarction), repeat revascularization, major bleeding. All patients will be reassessed at the immediate post-operative, and at 6 months after the revascularization procedure.

Conclusion: 6 months follow-up results of patients with low SYNTAX scores, PCI is an acceptable revascularization strategy, with worse long term left ventricular function, which is a landmark for repeat investigations and repeat revascularization.

Topic: Percutaneous coronary intervention coronary artery bypass surgery low syntax, MACCE.

Issue Section: Coronary artery disease.

Key Words: Percutaneous Coronary Intervention – Coronary Artery Bypass Grafting – SYNTAX – PCI – SYNTAX Score – Coronary Artery Disease – CABG – ISR Instent Restnosis.

Introduction

PERCUTANEOUS coronary intervention (PCI) technology, development from balloon angioplasty to bare-metal stents (BMS) and subsequently drug-eluting stents (DES). Several clinical trials have been conducted over the last decades to test the outcomes of PCI versus coronary artery bypass grafting (CABG), which has been considered the 'gold standard' for treatment of coronary artery disease (CAD).

With improvements in outcomes of PCI, more patients are being treated with percutaneous tech-

Correspondence to: Dr. Hussein A. Nofal, The Department of Cardiac Surgery, National Heart Institute, Egypt

nique, less invasive with short recumbancy, including those with complex CAD.

Based on 1 year results from SYNTAX trial, both European and North-American guidelines recommend PCI as a valuable treatment option for patients with LM disease and an alternative to CABG in selected patients with low SYNTAX score (<23) [1-5].

Patients and Methods

Study design:

During the year 2021, 316 patients presented to our center, fulfilling the criteria, chronic coronary syndromes, and impaired systolic function with EF below 40%, and were symptomatic on guidelines directed medical therapy. These patients had coronary angiography. 189 patients were discovered to have significant three-vessel coronary artery disease. From those patients, we selected 80 patients who had low syntax scores between 0-22.

The study population was divided into two groups, after patient counseling and heart team discussion for every case, we divided the study population into two groups.

- Group A: Consisted of 30 patients who were treated with Coronary Artery Bypass Graft surgery.
- Group B: Consisted of 50 patients who were treated with Percutaneous Coronary Intervention.

The study endpoints were:

- 1- Major Adverse Cardiovascular Events (Death, nonfatal stroke, nonfatal myocardial infarction).
- 2- Repeat revascularization.
- 3- Major bleeding.

Data were collected at the preprocedure period, intraprocedure, and the immediate post procedure period and 6 month post procedure. All patients were generally, and locally evaluated by routine examination and by means of Echocardiography to evaluate their cardiac function.

Statistical methods:

Continuous variables are formed as mean ± SD and compared using the Student *t*-test. Discrete data are presented as frequencies and compared with χ^2 or Fisher's exact tests.

p-value of <0.05 indicates “statistical significance”. All statistical analyses were performed using the SPSS software, version 26 (IBM Corporation, Armonk, NY, USA), and all references

were searched and cited through Mendeley Desktop, version 1.19.

Criteria were constructed to identify whether PCI treatment vs. CABG was an independent predictor of MACCE, the composite safety endpoint, and all-cause death during follow-up.

Results

Table (1): Baseline characteristics of patients.

	CABG (n=30)		PCI (n=50)		<i>p</i> -value
	Mean	SD	Mean	SD	
Age	55.3	10	67.6	8.3	<0.001
Mean Syntax	18.77	2.64	19.8	2.01	0.026
Preoperative EF	36.4	4.53	34.46	2.82	0.020

There were no significant difference between the two patient groups as regard their pre-procedure Syntax score or preoperative ejection fraction, but the mean age was significantly higher in the PCI groups 67.6.

Table (2): Pre-procedural risk factors.

	CABG (n=30)		PCI (n=50)		<i>P</i> -value
	Number	Percent	Number	Percent	
Males	19	63.3	36	72	
Females	11	36.7	14	28	
Smoking	24	80			
DM	20	66.7			
Previous MI	27	90			
Preoperative AF	1	3.3	6	12	.067

There were no significant difference between the two group in the incidence of preoperative atrial fibrillation, but male patients were significantly higher in the PCI group in comparison to the female side of the same group or the male and female side of the CABG group.

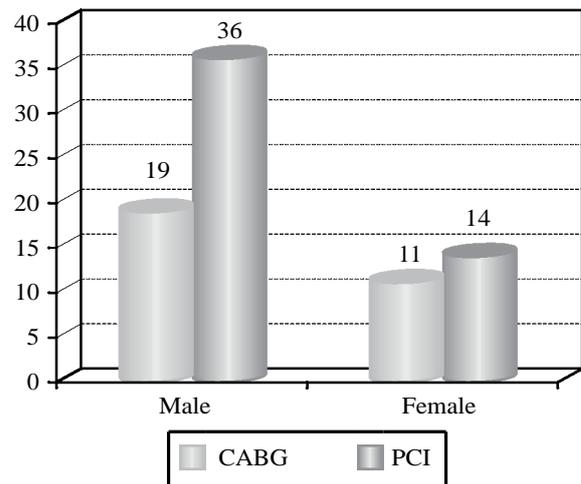


Fig. (1): Sex distribution in the two groups patients.

Table (3): Procedures related data.

	CABG		PCI	
	Mean	SD	Mean	SD
Number of grafts	3.07	0.64		
Ischemic Time	56.23	11.50		
Total Bypass Time	90.90	13.24		
Inotropic Support	30	100		
IABP	13	43.3		
Number of Stents			3.58	0.81

Table (4): Postprocedure data.

	CABG		PCI		p-value
	Mean	SD	Mean	SD	
Postoperative AF	3	10	6	12	0.784
ICU stay	66.43	14.79	18.42	1.18	<0.001
Ward stay	90.40	23.3	6.72	3.56	<0.001
Total Stay	156.83	23.8	24.96	4.75	<0.001
Post operative EF	41.93	8.49	40	4.37	0.127
EF 6 months	52.80	11.40	43.56	5.47	<0.001

There were no significant difference between the two groups as regard the total number of procedures (grafts or stents), but in surgery the procedure consumed a longer operative time, bypass time and ischemic time and needed pharmacological support weaning from bypass and used IABP in 43.3% of the procedures.

Patients who underwent PCI generally received more secondary preventive medication during follow-up than those who underwent CABG. Antiplatelet therapy was given both in the PCI group as well as CABG group. No in hospital mortality or MACCE were met in the two groups.

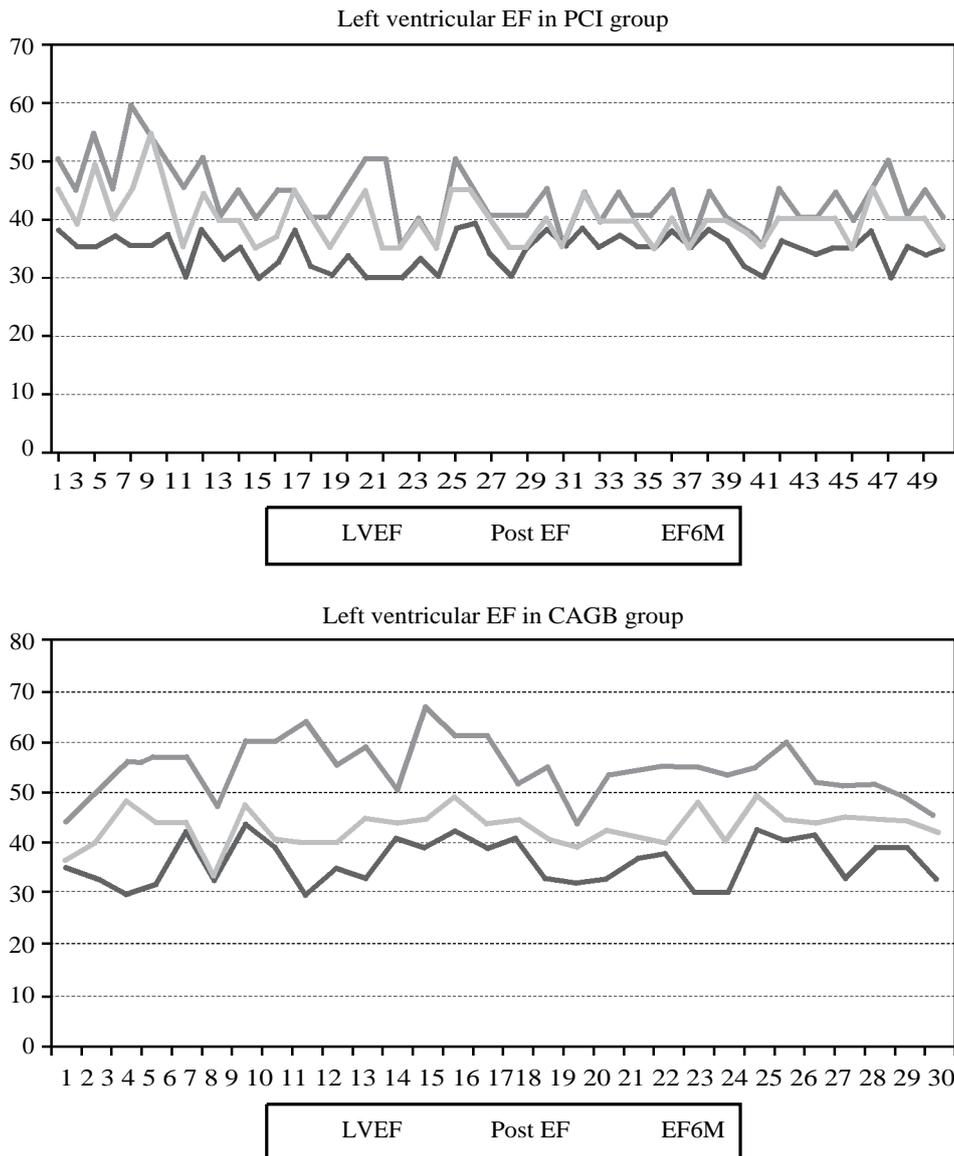


Fig. (2): LVEF in both groups of patients.

Ejection fraction showed no significant difference between two groups in the preoperative and postoperative echo-assessment, but in the 6 months follow-up, patient that received a CABG operation showed a significantly better ventricular function than patients from the PCI group.

Discussion

The short term follow-up the patients with low SYNTAX demonstrated that treatment with PCI or CABG had no significant change in low EF patients with improvement of EF post operative in the two groups, more significant in the CABG group [6].

Though both groups did not complicate by any MACCE, that include stroke, myocardial infarction and death, the PCI group ignored an important predicting factor like smoking and DM.

We had a short term follow-up results other studies showed that the PCI was an independent predictor, not only of 5-year MACCE but also of all-cause death and composite safety endpoint of death/stroke/MI [7].

We depend on SYNTAX scoring system in our study as the SYNTAX trial has been crucial for establishing the optimal revascularization strategies for patients with LM disease and 3 vessels disease [8].

In literature the numerous randomized control trials, registry data and associated meta-analyses, CABG was proven to be superior to PCI in high-risk patients with complex coronary artery lesions and left ventricular dysfunction and mortality while in our study no significant diversion as it is in short term and less complex procedure [9-12].

The heart team have routinely employed CABG for complex coronary artery lesions as a result in litterature during long-term follow-up, exceeding 15 years, the rates of MACCEs and repeat revascularization, but not combined outcomes of death/stroke/MI, were significantly better in patients with a lower SYNTAX score, who are potential candidates for PCI, than in patients with a higher SYNTAX score [13,14].

Our main finding that short-term MACCE rates after conventional CABG for low SYNTAX lesions showed non significant differences between the two groups according to the SYNTAX score tercile [15].

The CABG arm we have 20 patients had DM 66.7%. Unfortunately we have no clear data from

the PCI arm as regard the control of the glycosylated hemoglobin, may be neglected from their fast procedure and small wound (puncture), so due to a lesser number of individual data, subgroup analysis was not feasible, and not consistent with the 5-year data from the SYNTAX trial in 2018 (11 randomised trials involving 11,518 patients) comparing PCI with CABG for complex CAD were assembled and meta-analyzed.

In literatures like SYNTAX trial all-cause mortality in the was significantly higher with PCI compared with CABG. Due to the large number of individual data, subgroup analysis was feasible. It showed that in non-diabetic patients with multi-vessel disease and low SYNTAX score ≤ 22 , PCI was as safe and effective as CABG. Similarly, patients with non-complex LM disease had similar survival with PCI and CABG. In diabetic patients, a trend for better outcome with CABG compared with PCI was observed as the SYNTAX score increased [5,16].

In our study the patients was completely revascularized and the rate of combined outcomes of death/stroke/MI did not show statistical difference between the two groups [17].

In SYNTAX study the results suggest that the SYNTAX score, which was introduced to measure the complexity and severity of atherosclerotic coronary disease, is prognostic of long-term outcomes after CABG for complex coronary artery lesions. Our data support the result of the SYNTAX trial that suggest that patients with lower SYNTAX score who were believed to be candidates for PCI might achieve better long-term MACCE specially with the lake of data from the PCI arm like previous MI, stroke,DM and smoking [7,8].

The advantage of The SYNTAX Score II is that augmented the SYNTAX score with clinical variables, namely age, creatinine and left ventricular ejection fraction, to be at least comparable with the 17-variable EuroSCORE in predicting in-hospital mortality after CABG. Furthermore, prospective validation studies are underway in the EXCEL Trial (LM) and planned SYNTAX II Trial (de novo three-vessel disease) [18].

Consistently with some studies We routinely employ conventional CABG with cardiopulmonary bypass with cardioplegic arrest, and use single LIMA in situ graft for better long-term graft patency. We also confirm early revascularization of the LAD territory and culprit lesions, mainly by coronary graft angiography during hospitalization. We speculate that these surgical and perioperative

managements, associated with less atherosclerotic anastomoses sites in CABG for patients with lower SYNTAX score, are at least partly responsible for the lower incidence of repeat revascularization, which in turn influences the MACCE rate [18].

No off pump patients was done in our study as the randomized trial, as meta-analysis found a reduction in postoperative patency of bypass grafts performed during off-pump CABG [19,20].

Our Egyptian patients could have long-term benefits from conventional CABG in consistent with age- and gender- matched Japanese population [21].

Despite better long-term outcomes of CABG with the use of bilateral IMA, we did not use bilateral IMA or any other arterial graft, to unify the surgical techniques between surgeon and shorten the procedure time [22].

In our routine strategy of conventional CABG for complex coronary artery lesions, the SYNTAX score, which evaluates coronary pathology as a determinant of treatment, is indeed prognostic of long-term outcomes after CABG. These results support the result of the SYNTAX trial that CABG should remain the standard of care for patients with complex lesions. Our findings also provide a benchmark against which long-term outcomes of PCI for complex coronary artery lesions can be compared. Newer-generation DES might reduce the incidence of repeat revascularization and trying to cope with CABG.

Recommendations:

The study results was concordant with the data on the SYNTAX score and completeness of revascularization, from the current European guidelines it recommends class IIa B for PCI in patients with 3 vessels disease and SYNTAX scores ≤ 22 , provided full functional revascularization is feasible.

Not only the SYNTAX score cut-off value can always be overruled but also the anatomical complexity of the lesion have to be taken into consideration [5].

In conclusion the current SYNTAX score cut-offs of 23 and 32 were derived from the SYNTAX trial was still require confirmation from other large randomized trials comparing both procedure [10].

Additionally, In-stent Restenosis (IR) may be another factor responsible for differences long term outcomes between PCI and CABG in the current studies as it has a negative impact on PCI and not

CABG results. This could be explained by either a small sample size, because IR with CABG was associated with increased adverse events in an analysis of the combined SYNTAX trial and registry [19,20].

The Heart Team should also consider clinical parameters, comorbidities, treatment preferences, and operator skills, particularly in patients with low SYNTAX scores for whom both PCI and CABG are excellent options [23].

A much considered factor is diabetes, the presence of which has been shown to be a strong indicator for CABG [20,24,25].

Conversely, IR in CABG usually encompasses either small vessels with less ischaemic myocardium at risk or diffusely diseased vessels which are often well collateralized. It must also be considered that lesions of 50% angiographic severity are counted in the SYNTAX score and are not routinely bypassed, but contribute to IR by definition. For these reasons, IR with CABG is often considered to be more acceptable than with PCI [6].

Study limitation:

The main limitation in this study comes from the small numbers that only 30 CABG patients was enrolled and 50 patients underwent PCI.

This study also has its prospective and single institutional nature, the rule of heart team also was limited in classification whether patients were equally suitable for revascularization with CABG and PCI in this prospective setting, and also by the patient choice and consent about the procedure.

References

- 1- Global health estimates: Leading causes of death [Internet]. [cited 2022 Oct 15]. Available from: <https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death>
- 2- NEUMANN F-J., SOUSA-UVA M., AHLSSON A., ALFONSO F., BANNING A.P., BENEDETTO U., et al.: 2018 ESC/EACTS Guidelines on myocardial revascularization. Eur. Heart J. [Internet]. Jan. 7; 40 (2): 87-165. Available from: <https://doi.org/10.1093/eurheartj/ehy394>, 2019.
- 3- HLATKY M.A., BOOTHROYD D.B., BRAVATA D.M., BOERSMA E., BOOTH J., BROOKS M.M., et al.: Coronary artery bypass surgery compared with percutaneous coronary interventions for multivessel disease: A collaborative analysis of individual patient data from ten randomised trials. Lancet [Internet]. Apr 4 [cited 2022 Oct 15]; 373 (9670): 1190-7. Available from: <http://www.thelancet.com/article/S0140673609605523/fulltext>, 2009.

- 4- DAEMEN J., BOERSMA E., FLATHER M., BOOTH J., STABLES R., RODRIGUEZ A., et al.: Long-Term Safety and Efficacy of Percutaneous Coronary Intervention With Stenting and Coronary Artery Bypass Surgery for Multivessel Coronary Artery Disease. *Circulation* [Internet]. Sep 9 [cited 2022 Oct 15]; 118 (11): 1146-54. Available from: <https://www.ahajournals.org/doi/abs/10.1161/circulationaha.107.752147>, 2008.
- 5- LAWTON J.S., TAMIS-HOLLAND J.E., BANGALORE S., BATES E.R., BECKIE T.M., BISCHOFF J.M., et al.: 2021 ACC/AHA/SCAI Guideline for Coronary Artery Revascularization: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation*, Jan. 18; 145 (3): E18-114, 2022.
- 6- SIANOS G., MOREL M-A., KAPPETEIN A.P., MORICE M-C., COLOMBO A., DAWKINS K., et al.: The SYNTAX Score: An angiographic tool grading the complexity of coronary artery disease. *EuroIntervention* [Internet], Aug. 1; 1 (2): 219-27. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19758907>, 2005.
- 7- SPADACCIO C. and BENEDETTO U.: Coronary artery bypass grafting (CABG) vs. percutaneous coronary intervention (PCI) in the treatment of multivessel coronary disease: quo vadis? -a review of the evidences on coronary artery disease. *Ann Cardiothorac Surg* [Internet]. Jul 1 [cited 2022 Oct 19]; 7 (4): 506. Available from: </pmc/articles/PMC6082779/>, 2018.
- 8- KURLANSKY P., HERBERT M., PRINCE S. and MACK M.: Coronary artery bypass graft versus percutaneous coronary intervention. *Circulation* [Internet]. Oct 25 [cited 2022 Oct 19];134(17):1238-46. Available from: <https://www.ahajournals.org/doi/abs/10.1161/CIRCULATIONAHA.115.021183>, 2016.
- 9- HANNAN E.L., WU C., WALFORD G., CULLIFORD A.T., GOLD J.P., SMITH C.R., et al.: Drug-Eluting Stents vs. Coronary-Artery Bypass Grafting in Multivessel Coronary Disease Abstract [Internet]. Vol. 358, N. Engl. J. Med. Available from: www.nejm.org, 2008.
- 10- MOHR F.W., MORICE M.C., KAPPETEIN A.P., FELDMAN T.E., STÄHLE E., COLOMBO A., 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* [Internet]. Feb 23 [cited 2022 Oct 19]; 381 (9867): 629-38. Available from: <http://www.thelancet.com/article/S0140673613601415/fulltext>, 2013.
- 11- HANNAN E.L., RACZ M.J., WALFORD G., JONES R.H., RYAN T.J., BENNETT E., et al.: Long-Term Outcomes of Coronary-Artery Bypass Grafting versus Stent Implantation [Internet]. Available from: www.nejm.org, 2005.
- 12- HAHALIS G., DANGAS G., DAVLOUROUS P. and ALEXOPOULOS D.: Revascularization strategies for stable multivessel and unprotected left main coronary artery disease: from BARI to SYNTAX. *Int. J. Cardiol.* [Internet]. Dec 1 [cited 2022 Oct 19]; 153 (2): 126-34. Available from: <https://pubmed.ncbi.nlm.nih.gov/21474193/>, 2011.
- 13- DAOULAH A., ABOZENAH M., ALSHEHRI M., HERSI A.S., YOUSIF N., GARNI T.A.L., et al.: Unprotected Left Main Revascularization in the Setting of Non-Coronary Atherosclerosis: Gulf Left Main Registry. *Curr Probl Cardiol* [Internet]. Sep [cited 2022 Oct 19]; 101424. Available from: <https://pubmed.ncbi.nlm.nih.gov/36167223/>, 2022.
- 14- DAOULAH A., ELFARNAWANY A., AL GARNI T., HERSI A.S., ALSHEHRI M., ALMAHMEED W., et al.: Outcomes of myocardial revascularization in diabetic patients with left main coronary artery disease: A multi-center observational study from three gulf countries. *Cardiovasc. Revasc. Med.* [Internet]. Aug 6 [cited 2022 Oct 19]; Available from: <http://www.ncbi.nlm.nih.gov/pubmed/35961856>, 2022.
- 15- ALMAS T., AFZAL A., FATIMA H., YAQOOB S., AHMAD JARULLAH F., AHMED ABBASI Z., et al.: Safety and efficacy of percutaneous coronary intervention versus coronary artery bypass graft in patients with STEMI and unprotected left main stem disease: A systematic review & meta-analysis. *IJC Hear Vasc.*, Jun 1; 40: 1010411. Holzhey DM, Luduena MM, Rastan A, Jacobs, 2022.
- 16- SERRUYS P.W., MORICE M-C., KAPPETEIN A.P., COLOMBO A., HOLMES D.R., MACK M.J., et al.: Percutaneous Coronary Intervention versus Coronary-Artery Bypass Grafting for Severe Coronary Artery Disease. *N. Engl. J. Med.*, 10 (5): 961-72, 2009.
- 17- FLYNN M., REDDY S., SHEPHERD W., HOLMES C., ARMSTRONG D., LUNN C., et al.: Fast-tracking revisited: Routine cardiac surgical patients need minimal intensive care. Available from: www.elsevier.com/locate/ejcts.
- 18- HOLZHEY D.M., LUDUENA M.M., RASTAN A., JACOBS S., WALTHER T., MOHR F.W., et al.: Is the SYNTAX score a predictor of long-term outcome after coronary artery bypass surgery? *Heart Surg Forum* [Internet]. Jun [cited 2022 Oct 19]; 13 (3). Available from: <https://pubmed.ncbi.nlm.nih.gov/20534412/>, 2010.
- 19- SHROYER A.L., GROVER F.L., COLLINS J.F., MCDONALD G.D.O., KOZORA E., LUCKE J.C., et al.: On-Pump versus Off-Pump Coronary-Artery Bypass Surgery. Vol. 19, N. Engl. J. Med., 2009.
- 20- TAKAGI H., TANABASHI T., KAWAI N., KATO T. and UMEMOTO T.: Off-pump coronary artery bypass sacrifices graft patency: Meta-analysis of randomized trials. *J. Thorac. Cardiovasc. Surg.*, 133: e2-3, 2007.
- 21- TAMAKOSHI A., OZASA K., FUJINO Y., SUZUKI K., SAKATA K., MORI M., et al.: Cohort Profile of the Japan Collaborative Cohort Study at Final Follow-up, 2013.
- 22- STEVENS L.M., CARRIER M., PERRAULT L.P., HÉBERT Y., CARTIER R., BOUCHARD D., et al.: Influence of diabetes and bilateral internal thoracic artery grafts on long-term outcome for multivessel coronary artery bypass grafting *. Available from: www.elsevier.com/locate/ejcts, 2004.
- 23- FAROOQ V. and SERRUYS P.W.: Bypass Grafting Versus Percutaneous Intervention-Which Is Better in Multivessel Coronary Disease: Lessons From SYNTAX and Beyond. *Prog. Cardiovasc. Dis.*, Nov. 1; 58 (3): 316-34, 2015.
- 24- SHROYER A.L., GROVER F.L., HATTLER B., COLLINS J.F., MCDONALD G.O., KOZORA E., et al.: On-Pump versus Off-Pump Coronary-Artery Bypass Surgery. *N Engl J Med* [Internet]. Nov 5 [cited 2022 Oct 19]; 361 (19): 1827-37. Available from: <https://www.nejm.org/doi/10.1056/NEJMoa0902905>, 2009.

25- PUSKAS J.D., THOURANI V.H., KILGO P., COOPER W., VASSILIADES T., VEGA J.D., et al.: Off-Pump Coronary Artery Bypass Disproportionately Benefits

High-Risk Patients. Ann. Thorac. Surg. [Internet]. Oct 1 [cited 2022 Oct 19]; 88 (4): 1142-7. 09008960/fulltext, 2009.

مقارنة توصيل الشرايين التاجية عن طريق الجراحة وبالدعامات الدوائية عند المرضى المصابين بقصور الشريان التاجي بثلاثة أوعية مع معدل Syntax منخفض وضعف عضلة القلب

مقدمة: يعد تصلب الشرايين التاجية مشكلة صحية رئيسية في جميع أنحاء العالم. ففي ديسمبر ٢٠٢٠، ذكرت منظمة الصحة العالمية (WHO) أن تصلب الشرايين هو السبب الرئيسي للوفاة في جميع أنحاء العالم لأنه يؤثر على الأوعية الدموية الدماغية والشرايين التاجية مما يتسبب في حدوث سكتة قاتلة واحتشاء عضلة القلب. يشمل علاج مرض الشريان التاجي العلاج الطبي أو الدعامات أو جراحة القلب. وقد نصحت الجمعية الأوروبية لأمراض القلب (ESC)/الرابطة الأوروبية لجراحة القلب (EACTC) بأن كلا الطريقتين الجراحة والقسطرة آمنتين في حال أن معدل SYNTAX من ٠ إلى ٢٢، مع ضعف وظيفة البطين الأيسر الانقباضي من أقل من ٤٠٪.

الهدف من العمل: في دراستنا، قمنا بمقارنة كل من إستراتيجية العلاج الجراحي مقارنة بالقسطرة والدعامات في حالات انسداد ثلاثة شرايين تاجية، وضعف البطين الأيسر لأقل من ٤٠٪.

الطرق والنتائج: الدراسة مقسمة إلى مجموعتين، المجموعة (أ) من ٣٠ مريضاً تم علاجهم بجراحة ترقيع الشريان التاجي، المجموعة (ب) من ٥٠ مريضاً تم علاجهم بالتدخل عن طريق القسطرة العلاجية. كانت نقاط نهاية الدراسة الأحداث القلبية الوعائية الكبرى (الوفاة، السكتة الدماغية غير المميطة، احتشاء عضلة القلب غير المميطة)، تكرر إعادة تروية عضلة القلب، نزيف حاد. في الشهر التالي للعملية مباشرة، وجد بعد ٦ شهراً أن المرضى (العدد = ٨٠). تحسنت وظائف القلب في كلا المجموعتين وكان التحسن في مجموعة الجراحة ملحوظاً بعد ٦ أشهر من الجراحة، لم يحدث أي مضاعفات مرتبطة بالأحداث القلبية والأوعية الدموية الدماغية (MACCE).

الاستنتاج: نستنتج من هذه الدراسة ان نتائج المتابعة لمدة ١٢ شهراً للمرضى الذين يعانون من درجات SYNTAX منخفضة، تعد القسطرة استراتيجية مقبولة لإعادة تروية عضلة القلب، ومنافسة للنتائج المعلومة بالتميز لجراحة الشرايين التاجية.