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2-1-2023

CRT-700.05 Impella Utilization in High-Risk Percutaneous Coronary Intervention Mitigates the Risks of Procedural and Clinical Adverse Events Independent of Left Ventricular Ejection Fraction: The Protect III Study

Arsalan Abu-Much

Aneel Maini

Cindy L. Grines

Aditya Bharadwaj

Jeffrey W. Moses

See next page for additional authors

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Authors

Arsalan Abu-Much, Aneel Maini, Cindy L. Grines, Aditya Bharadwaj, Jeffrey W. Moses, Yiran Zhang, Björn Redfors, Lavanya Bellumkonda, Yanru Li, Alexander G. Truesdell, Suzanne J. Baron, Alexandra J. Lansky, Mir B. Basir, and William O'Neill

| Effect of body mass index (BMI) on in-hospital outcomes of Mitraclip in patients, Insights from NIS 2016-2020 | | | | | |
|---|------------------------------------|-----------------------------|----------------------------|---------------------|---------|
| Variables | Overweight (BMI: 25 to 29.9) n=555 | Class 1 (30 to 34.9) n=1305 | Class 2 (35 to 39.9) n=965 | Class 3 (>40) n=979 | p-value |
| Mean Age | 76.66±0.13 | 74.91±0.80 | 71.48±0.74 | 66.58±0.84 | 0.01 |
| Gender: (%) | | | | | 0.01 |
| Male | 59.46 | 59.39 | 45.31 | 37.95 | |
| Female | 40.54 | 40.61 | 54.69 | 62.05 | |
| Race: (%) | | | | | 0.01 |
| Caucasian | 80.29 | 79.22 | 72.22 | 70.65 | |
| African American | 8.29 | 9.80 | 16.11 | 21.74 | |
| Hispanic | 5.95 | 6.67 | 7.22 | 5.98 | |
| Asian | 2.85 | 1.18 | 1.67 | 0.54 | |
| Comorbidities (%) | | | | | |
| Total diabetes mellitus | 40.54 | 47.89 | 51.56 | 48.21 | 0.01 |
| Hypertension | 75.68 | 70.11 | 70.83 | 61.03 | 0.001 |
| Peripheral vascular disease | 9.01 | 8.43 | 5.73 | 4.1 | 0.03 |
| Chronic kidney disease | 50.45 | 44.06 | 53.65 | 41.54 | 0.01 |
| ESRD | 5.41 | 5.36 | 3.13 | 1.54 | 0.24 |
| Atrial fibrillation | 58.56 | 51.34 | 44.27 | 40.51 | 0.03 |
| Charlson comorbidity index: | | | | | 0.001 |
| 0 | 5.41 | 2.3 | 1.56 | 2.56 | |
| 1 | 11.71 | 14.18 | 12.5 | 16.41 | |
| 2 | 18.02 | 16.09 | 17.19 | 23.08 | |
| 3 | 64.86 | 67.43 | 68.75 | 57.95 | |
| Complications/Outcomes: (%) | | | | | |
| Total major bleeding | 0.9 | 0 | 1.56 | 1.54 | 0.36 |
| Ventricular tachyarrhythmias | 3.6 | 5.75 | 3.12 | 8.72 | 0.15 |
| Post-op DVT/PE | 0.9 | 1.92 | 1.56 | 2.05 | 0.63 |
| Total thromboembolic complications | 2.7 | 5.36 | 4.17 | 3.59 | 0.50 |
| Acute respiratory failure | 4.5 | 3.83 | 8.33 | 12.82 | 0.003 |
| Acute kidney injury requiring dialysis | 0 | 0.38 | 1.04 | 0 | 0.07 |
| Total vascular complications | 0 | 0.38 | 0 | 0.51 | 0.84 |
| Pericardial complications | 0 | 1.53 | 0.52 | 0.51 | 0.15 |
| In-hospital mortality | 0 | 0.77 | 1.56 | 2.56 | 0.34 |
| Length of stay (days) | 4.56±0.62 | 3.87±0.41 | 4.42±0.47 | 6.47±0.72 | 0.001 |
| Total charges (USD) | 217217.9±13122.39 | 222603±10420.43 | 213415.9±10868.81 | 241382.8±16035.18 | 0.001 |

(mean LVEF 52.6±9.2). Patients in the higher tertiles were older, more likely to be females, presented more with acute coronary syndrome, and had more frequent left main disease. Also, severely calcified lesions and atherectomy utilization were more frequent in the higher tertiles. The rates of 90-day MACCE were comparable across all tertiles. Furthermore, PCI-related complications and 1-year mortality were also comparable (Table). After multivariable adjustment, 90-day MACCE was not significantly different between the LVEF tertiles (p=0.32).

CONCLUSION In patients with HRPCCI supported by Impella, the rates of in-hospital adverse events, PCI-related complications, 90-day MACCE, and 1-year mortality were comparable among the different LVEF tertiles.

Table. Baseline and procedural characteristics, in-hospital, and study outcomes

| | 1 st Tertile (n=353) | 2 nd Tertile (n=274) | 3 rd Tertile (n=313) | P value |
|---|---------------------------------|---------------------------------|---------------------------------|---------|
| Age (years) | 68.5 ± 10.7 | 70.7 ± 11.4 | 74.4 ± 9.8 | <0.0001 |
| Sex (Female) | 20.1% | 25.5% | 39.4% | <0.0001 |
| Diabetes mellitus | 56.0% | 61.4% | 52.2% | 0.08 |
| Congestive heart failure | 74.1% | 65.7% | 40.6% | <0.0001 |
| Left ventricular ejection fraction, % | 19.6 ± 4.7 | 32.2 ± 3.5 | 52.6 ± 9.2 | <0.0001 |
| Acute coronary syndrome as indication for HRPCCI | 46.5% | 58.8% | 61.2% | 0.0005 |
| 3-vessel coronary artery disease | 25.2% | 27.7% | 25.6% | 0.75 |
| Left main disease | 45.7% | 56.6% | 74.1% | <0.0001 |
| Pre-Impella systolic blood pressure, mmHg | 121.0 ± 20.4 | 123.6 ± 21.9 | 130.2 ± 23.2 | <0.0001 |
| Severely calcified lesions | 44.3%* | 51.2%* | 51.2%* | 0.010 |
| Atherectomy use | 52.3% | 56.1% | 64.8% | 0.02 |
| In-hospital outcomes | | | | |
| PCI-related complications ⁶ | 2.6% | 2.9% | 2.5% | 0.93 |
| Severe heart failure requiring IV inotrope, ultra-filtration or MCS | 0.6% | 0% | 0.3% | 0.46 |
| Life-threatening, disabling, or major bleeding (BARC≥3a) | 2.3% | 2.6% | 2.9% | 0.88 |
| Vascular complication requiring planned surgery | 1.1% | 0.4% | 0.6% | 0.52 |
| Study Outcomes (KM analysis, log-rank test) | | | | |
| 30-day MACCE [†] | 7.9% | 10.9% | 6.9% | 0.28 |
| 90-day MACCE [†] | 13.0% | 14.6% | 11.4% | 0.57 |
| 1-year all-cause mortality | 23.8% | 20.6% | 18.2% | 0.32 |

Data are presented as mean ± standard deviation or %, where applicable. *Percentage calculated from the number of lesions. [†]defined as the composite rate of no-reflow, abrupt closure, dissection, distal embolus, and perforation. [‡]MACCE is the composite of all-cause death, myocardial infarction, stroke/transient ischemic attack, and revascularization. BARC denotes the Bleeding Academic Research Consortium; HRPCCI, high-risk percutaneous coronary intervention; MACCE: major adverse cardiac and cerebrovascular events; MCS, mechanical circulatory support; PCI, percutaneous coronary intervention.

CRT-700.14
Incremental Predictive Value of Cardiac Troponin Positivity and Right Ventricular Strain Added to PESI Risk Class in Submassive Pulmonary Embolism

Ufuk Vardar,¹ Neeraj Jolly,² Steve Attanasio,² Rami Doukky,¹ Saurabh Malhotra,¹ Dae Yong Park,¹ Aviral Vij¹
¹John H. Stroger Hospital of Cook County, Chicago, IL; ²Rush University Medical Center, Chicago, IL

BACKGROUND Pulmonary embolism (PE) is the third leading cause of cardiovascular death with an annual incidence rate of 70 per 100,000 people. Risk prediction models assist with identifying those with increased risk of hemodynamic compromise, death and needing higher level of care. We aimed to investigate incremental predictive value of incorporating information from cardiac troponins and right ventricular (RV) strain which have become important variables in risk stratification.

METHODS A retrospective cohort study was conducted including 348 patients admitted with a diagnosis of submassive PE dating from

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CRT-700.05
Impella Utilization in High-Risk Percutaneous Coronary Intervention Mitigates the Risks of Procedural and Clinical Adverse Events Independent of Left Ventricular Ejection Fraction: The Protect III Study

Arsalan Abu-Much,¹ Aneel Maini,¹ Cindy L. Grines,² Aditya Bharadwaj,³ Jeffrey W. Moses,⁴ Yiran Zhang,¹ Björn Redfors,¹ Lavanya Bellumkonda,⁵ Yanru Li,¹ Alexander G. Truesdell,⁶ Suzanne J. Baron,⁷ Alexandra J. Lansky,⁵ Mir B. Basir,⁸ William O’Neill⁸
¹Cardiovascular Research Foundation, New York, NY; ²Northside Hospital Cardiovascular Institute, Athens, GA; ³Loma Linda University International Heart Institute, Loma Linda, CA; ⁴Columbia University Irving Medical Center, New York, NY; ⁵Yale School of Medicine, New Haven, CT; ⁶Inova Medical Group - Cardiology, Falls Church, VA; ⁷Beth Israel Lahey Health, Burlington, MA; ⁸Henry Ford Hospital, Detroit, MI

BACKGROUND Left ventricular (LV) dysfunction is associated with an increased risk of adverse events in patients undergoing percutaneous coronary intervention (PCI). However, the impact of LV ejection fraction (LVEF) on the outcomes of Impella-supported high-risk PCI (HRPCCI) is unknown.

METHODS Patients enrolled in the prospective, multicenter, and observational PROTECT III study from March 2017 to March 2020 who underwent Impella-supported HRPCCI at the operator’s discretion (non-cardiogenic shock). Patients were divided into three tertiles (T) based on baseline LVEF: T1 (the lowest), T2, and T3 (the highest). The primary outcome is the rate of 90-day major adverse cardiac and cerebrovascular events (MACCE), defined as the composite of all-cause death, myocardial infarction, stroke/transient ischemic attack, and repeated revascularization as adjudicated by an independent CEC.

RESULTS Of 1237 patients, 940 with available baseline LVEF were analyzed. T1 included 353 patients (mean LVEF 19.6±4.7), T2 included 274 patients (mean LVEF 32.2±3.5), and T3 included 313 patients