

Henry Ford Health

## Henry Ford Health Scholarly Commons

---

Cardiology Meeting Abstracts

Cardiology/Cardiovascular Research

---

9-1-2022

### **TCT-99 Short- and Long-Term Outcomes of Patients With Chronic Kidney Disease Undergoing Protected High-Risk Percutaneous Coronary Intervention**

Aditya Bharadwaj

Arsalan Abu-Much

Bjorn Redfors

Yanru Li

Jeffrey Moses

*See next page for additional authors*

Follow this and additional works at: [https://scholarlycommons.henryford.com/cardiology\\_mtgabstracts](https://scholarlycommons.henryford.com/cardiology_mtgabstracts)

---

---

**Authors**

Aditya Bharadwaj, Arsalan Abu-Much, Bjorn Redfors, Yanru Li, Jeffrey Moses, Cindy Grines, Robert Yeh, Peter Mallow, Mitul Patel, Thomas Waggoner, Haroon Faraz, Duane Pinto, Wayne Batchelor, Alexander Truesdell, Suzanne Baron, Mir B. Basir, and William O'Neill

**TCT-99**

**Short- and Long-Term Outcomes of Patients With Chronic Kidney Disease Undergoing Protected High-Risk Percutaneous Coronary Intervention**



Aditya Bharadwaj,<sup>1</sup> Arsalan Abu-Much,<sup>2</sup> Bjorn Redfors,<sup>3</sup> Yanru Li,<sup>3</sup> Jeffrey Moses,<sup>4</sup> Cindy Grines,<sup>5</sup> Robert Yeh,<sup>6</sup> Peter Mallow,<sup>7</sup> Mitul Patel,<sup>8</sup> Thomas Waggoner,<sup>9</sup> Haroon Faraz,<sup>10</sup> Duane Pinto,<sup>6</sup> Wayne Batchelor,<sup>11</sup> Alexander Truesdell,<sup>12</sup> Suzanne Baron,<sup>13</sup> Mir Basir,<sup>14</sup> William O'Neill<sup>14</sup>

<sup>1</sup>Loma Linda University, Loma Linda, California, USA; <sup>2</sup>Chaim Sheba Medical Center, Ramat Gan, Israel; <sup>3</sup>Cardiovascular Research Foundation, New York, New York, USA; <sup>4</sup>St Francis Hospital and Heart Center, Roslyn, New York, USA; <sup>5</sup>Northside Hospital, Atlanta, Georgia, USA; <sup>6</sup>Beth Israel Deaconess Medical Center, Boston, Massachusetts, USA; <sup>7</sup>Xavier University, Cincinnati, Ohio, USA; <sup>8</sup>UC San Diego Health System, La Jolla, California, USA; <sup>9</sup>Pima Heart and Vascular/Tucson Medical Center, Tucson, Arizona, USA; <sup>10</sup>Hackensack University Medical Center, Hoboken, USA; <sup>11</sup>Inova Heart and Vascular Institute, Falls Church, Virginia, USA; <sup>12</sup>Virginia Heart/Inova Heart and Vascular Institute, McLean, Virginia, USA; <sup>13</sup>Lahey Hospital and Medical Center, Winchester, Massachusetts, USA; <sup>14</sup>Henry Ford Hospital, Detroit, Michigan, USA

**BACKGROUND** Patients with chronic kidney disease (CKD) and concomitant multivessel coronary artery disease (CAD) with or without left ventricular dysfunction often have high surgical risk and are declined for coronary artery bypass grafting. There is little data regarding clinical outcomes in these patients undergoing high-risk PCI (HRPCI) using Impella.

**METHODS** We analyzed patients from the PROTECT III Study who underwent Impella-supported HRPCI and stratified them into 3 groups by kidney function status based on history: 1) normal kidney function, 2) CKD without dialysis, and 3) CKD with dialysis. We compared the composite incidence of major adverse cardiac and cerebrovascular events (MACCE) rate, defined as all-cause death, myocardial infarction (MI), stroke/transient ischemic attack (TIA), and repeat revascularization at 30 and 90 days.

**RESULTS** We included 1,223 patients, aged 71 ± 11 years; 73% (893) were men, 68% (834) had normal kidney function (serum creatinine [Cr] 1.1 mg/dL, IQR 0.9-1.2), 23% (278) had CKD without dialysis (Cr 1.7 mg/dL, IQR 1.3-1.9), and 9% (111) were on dialysis. Patients on dialysis were younger with more comorbidities such as diabetes, heart failure, anemia, PVD and prior stroke. HRPCI status (urgent or elective), proportion of acute MI, and mean SYNTAX scores were similar. No significant differences in MACCE were shown between groups at 30 days or 90 days (**Table**). Patients with normal kidney function had comparable risks of 30-day and 90-day MACCE compared with CKD patients without dialysis with Cox proportional hazards analysis, and lower risk of 90-day MACCE compared to CKD patients with dialysis. Notably, CKD patients with or without dialysis also had similar 90-day MACCE risk (**Table**).

	Normal Kidney Function (n = 834)	CKD Not on Dialysis (n = 278)	CKD on Dialysis (n = 111)	P Value
Baseline characteristics				
Age	70 ± 11.3	73 ± 10.6	68 ± 9.8	<0.0001
Sex male	607 (72.8)	206 (74.1)	80 (72.1)	0.89
30-day and 90-day outcomes: Kaplan-Meier estimates				
30-day MACCE	59 (9.3)	27 (12.4)	12 (15.2)	0.14
30-day all-cause death	44 (7.0)	19 (8.9)	10 (12.7)	0.16
90-day MACCE	88 (14.2)	37 (17.3)	18 (23.2)	0.07
90-day all-cause death	62 (10.1)	26 (12.4)	15 (19.7)	0.04
30-day and 90-day outcomes: Cox proportional hazards model estimated hazard ratios (CIs)				
	Normal Kidney Function vs CKD Not on Dialysis	Normal Kidney Function vs CKD on Dialysis	CKD Not on Dialysis vs CKD on Dialysis	
30-day MACCE	0.69 (0.43-1.13) P = 0.17	0.53 (0.27-1.04) P = 0.09	0.76 (0.36-1.60) P = 0.55	
90-day MACCE	0.76 (0.49-1.16) P = 0.24	0.48 (0.27-0.86) P = 0.03	0.64 (0.33-1.22) P = 0.27	

Values presented as mean ± SD or n (%).

**CONCLUSION** Patients with CKD and dialysis undergoing HRPCI exhibit higher risk for 90-day MACCE compared to patients with normal kidney function. CKD patients without dialysis also had higher risk of MI at 90 days. Further research is needed.

**CATEGORIES CORONARY:** Complex and Higher Risk Procedures for Indicated Patients (CHIP)

**TCT-100**

**Temporal Trends in Complex PCI Interventions**



Mark Kheifets,<sup>1</sup> Shelly Vons,<sup>1</sup> Tamir Bental,<sup>1</sup> Hana Vaknin Assa,<sup>2</sup> Gabriel Greenberg,<sup>3</sup> Abed Samara,<sup>4</sup> Pablo Codner,<sup>1</sup> Guy Witberg,<sup>1</sup> Yeela Talmor,<sup>5</sup> Leor Perl,<sup>6</sup> Ran Kornowski,<sup>1</sup> Amos Levi<sup>7</sup>

<sup>1</sup>Rabin Medical Center, Petah Tikva, Israel; <sup>2</sup>Rabin Medical Center, Ramat Gan, Israel; <sup>3</sup>Rabin Medical Center—Hasharon Campus, Petach-Tikva, Israel; <sup>4</sup>Rabin Medical Center, Tira, Israel; <sup>5</sup>Rabin Medical Center, Herzlia, Israel; <sup>6</sup>Rabin Medical Center, Hod Hasharon, Israel; <sup>7</sup>Rabin Medical Center, Givatayim, Israel

**BACKGROUND** Accumulated experience combined with technological advancements in percutaneous coronary interventions (PCI) over the past four decades, has led to a gradual increase in PCI utilization and complexity. We aimed to investigate the temporal trends in PCI complexity and the outcomes of complex PCI (C-PCI) in our institution.

**METHODS** We analyzed 20,301 consecutive PCI procedures performed over a 12-year period. C-PCI was defined as a procedure involving at least one of the following: chronic total occlusion, left main, bifurcation, or saphenous vein graft PCI. Four 3-year time intervals were defined (2008-10, 2011-13, 2014-16, 2017-19), and temporal trends in the rate and outcomes of C-PCI within these intervals were studied. End points included mortality and major adverse cardiac events (MACE: death, repeat myocardial infarction [re-MI], and target vessel revascularization [TVR]) at 1 year.

**RESULTS** 5,647 (27.8%) C-PCI procedures were performed. The rate of C-PCI has risen significantly since 2017 (P < 0.01), driven mainly by bifurcation and LM interventions (P < 0.01). At 1 year, rates of death, re-MI, TVR and MACE, were all significantly higher in the C-PCI group (P < 0.001 for all), compared with the noncomplex group. C-PCI performed in the latter half of the study period (2014-2019) were associated with improved 1-year TVR (P = 0.01) and MACE (P < 0.001) rates compared with 2007-2013. Death rate had not significantly declined with time.