Time-varying Effects of Prior Intracoronary Stenting on Early to Late CABG Mortality
In Diabetic Patients with Triple-vessel Disease

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INTRODUCTION

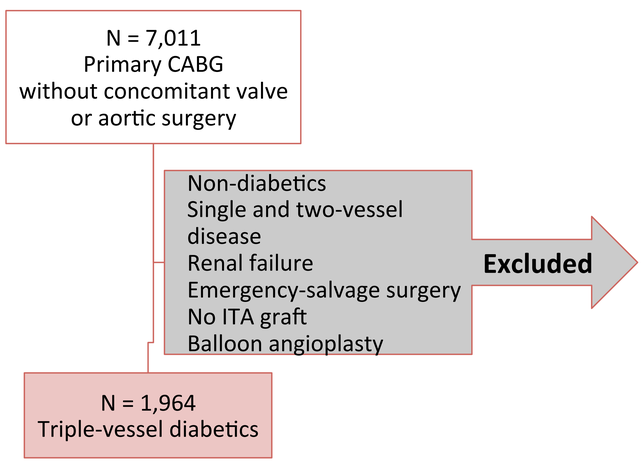
- Recent studies have demonstrated poorer short and intermediate term CABG outcomes in patients with prior intra-coronary stenting (PCI-s).
- Coronary vascular inflammation as well as suboptimal graft placement secondary to coronary stents have been implicated.

OBJECTIVE

To study the impact of coronary stents in a high-risk CABG population with substantial coronary disease burden and a propensity for vascular inflammation.

Study Population

- Single U.S. center CABG series (1992-2006)



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ANALYSIS METHODS

Propensity modeling

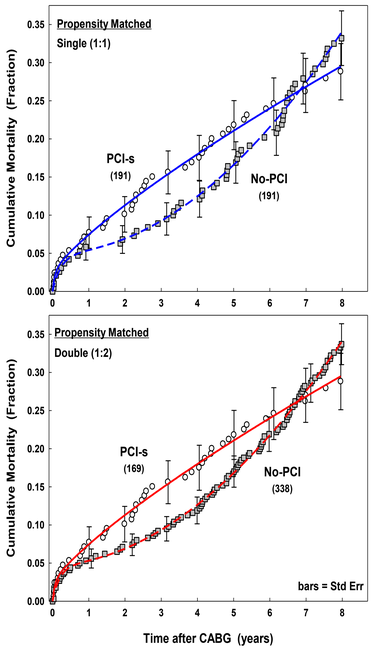
- Three separate comprehensive propensity score models based on 27 demographic, clinical and operative variables (probability of prior PCI-s) were derived for 1, 2, ≥3 arterial graft sub-cohorts.
- 1-to-1 (191 pairs) and 1-to-2 (169 triplets) greedy matching was used to match PCI-s and No-PCI-s.
- Cumulative all-cause mortality was next derived by Kaplan Meier analysis (log-rank) at multiple maximum follow-up times.
- Lastly, time-dependent relative hazard function was derived between 0 and 8 years (PCI-s/No-PCI).

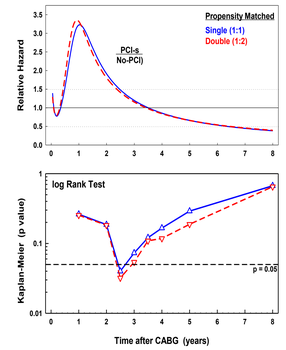
Table 1: Selected Patient Data

	Un-matched		Matched	
	Prior PCI-s		Prior PCI-s	
	No (n=1753)	Yes (n=211)	No (n=191)	Yes (n=191)
Age (years)	64.56 ± 9.44¥	62.63 ± 10.73¥	63.21 ± 9.46	63.28 ± 10.54
Male sex (%)	1132 (64.6)	137 (64.9)	135 (70.7)	120 (62.8)
CHF (%)	271 (15.5)	32 (15.2)	36 (18.8)	32 (16.8)
Ejection Fraction (%)	47.70 ± 11.83	46.63 ± 11.57	45.80 ± 11.21	46.64 ± 11.71
Hpertension (%)	1525 (87.0)	186 (88.2)	173 (90.6)	170 (80.9)
Hyperlipidemia (%)	1203 (68.6)¥	174 (82.5)¥	163 (85.3)	158 (82.7)
PVD (%)	309 (17.6)	37 (17.5)	44 (23)	35 (18.3)
CVD/CVA (%)	455 (26.0)	46 (21.8)	61 (31.9)*	43 (22.5)*
Atrial fibrilation (%)	71 (4.1)¥	17 (8.1)¥	9 (4.7)	14 (7.3)
Previous MI (%)	987 (56.3)¥	163 (77.3)¥	145 (75.9)	145 (75.9)
Left main stem disease (%)	323 (18.4)	35 (16.6)	29 (15.2)	31 (16.2)
Emergency CABG (%)	71 (4.1)¥	15 (7.1)¥	6 (3.1)	10 (5.2)
Number of grafts	4.00 (3.00,4.00)	4.00 (3.00,4.00)	4.00 (3.00,4.00)	4.00 (3.00,4.00)
Number of arterial grafts	1.00 (1.00,2.00)¥	1.00 (1.00,2.00)¥	1.00 (1.00,2.00)	1.00 (1.00,2.00)
Radial artery used (%)	657 (37.5)¥	100 (47.4)¥	80 (41.9)	82 (42.9)

¥ *P < 0.05 for comparison between un-matched PCI-s groups*
* *P < 0.05 for comparison between matched PCI-s group*

RESULTS





- There is a trend for decreased intermediate survival in the PCI-s group that reaches borderline statistical significance at 2.5 years.
- These results first identified in the single matched cohort were reproducible in the double matched cohorts.

CONCLUSIONS

- Prior Intracoronary stenting is associated with worse intermediate survival in diabetic triple-vessel CABG patients.
- Increased coronary vascular inflammation as well as suboptimal graft placement secondary to prior coronary stents may play a role in the worse intermediate term outcomes.
- Our findings challenge current practice trends of coronary stenting to delay surgery in high risk patients.
- A careful consideration of revascularization options in higher risk CAD patients, such as DM/3-VD, is warranted to maximize benefit of revascularization by CABG.
- Specific studies aimed at elucidating the mechanisms behind the adverse outcome effects of prior intracoronary stents is key and may allow for counteractive therapies.