

Rapid Pacing-Induced Severe Functional Mitral Regurgitation and Cardiogenic Collapse During TAVR

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Background: Transcatheter aortic valve replacement (TAVR) is an alternative approach to surgical AVR for patients with severe aortic stenosis in high surgical-risk condition. However, critical cardiogenic collapse can occur during the procedure for various reasons. **Case presentation:** A 77-year-old woman underwent TAVR for symptomatic severe aortic stenosis. Baseline transthoracic echocardiography showed a severely calcified aortic valve with a mean pressure gradient of 72 mmHg, an estimated orifice area of 0.77 cm² and normal left ventricular (LV) systolic function. Prior to device implantation, 23 mm balloon aortic valvuloplasty was performed under rapid ventricular pacing (RVP) at 180 beats/min. Even after a cessation of RVP, the patient had progressive hemodynamic deterioration down to blood pressure 40/30 mmHg requiring massive inotropic and vasopressor administration. Transesophageal echocardiography (TEE) showed severe biventricular systolic dysfunction and severe functional mitral regurgitation (MR) resulting from restricted systolic motion of both mitral leaflets, leading to incomplete coaptation. Aortic angiography excluded aortic annulus rupture and coronary embolization. A 23-mm balloon-expandable aortic valve (SAPIEN 3, Edward Lifesciences) was promptly placed under RVP and inotropic/vasopressor infusion. After several minutes, progressive normalization of LV function took place with decreased requirements for inotropic and vasopressor support, and final TEE evaluation confirmed return to baseline situation, with mild MR and normal leaflet coaptation. With our knowledge, this case is the first Korean case report that demonstrates the deleterious effects of RVP on myocardial contractility and the restoration of contractile dysfunction during TAVR procedure. In this patient, biventricular dysfunction additionally led to functional massive MR, contributing to the hemodynamic collapse. Limiting RVP time and selection of optimal pacing sites may prevent the development of this complication. This case also highlights real-time TEE monitoring and team management is mandatory to promptly detect the cause and appropriately treat periprocedural complication.

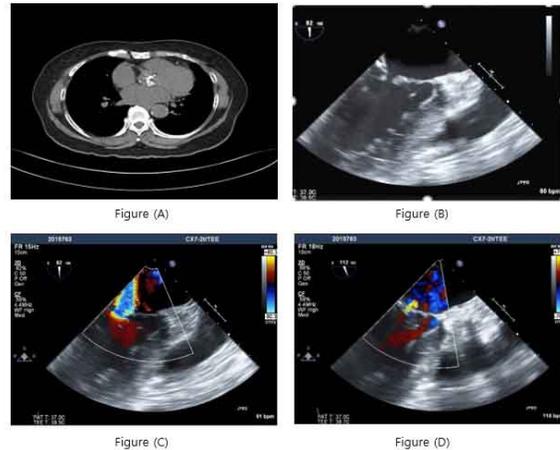


Figure. (A) Pre-procedural computed tomography showed significant aortic leaflet calcification. (B) Mid-esophageal 130° Transesophageal echocardiography view showed the absence of coaptation of both mitral valve leaflets, resulting in (C) severe mitral regurgitation. (D) At the end of procedure, valve anatomy returned to baseline, with normal leaflet coaptation and only mild MR.

Impact of Routine Mid-term FU Coronary Angiography in Diabetic Patients Undergoing PCI with DESs

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Background/Aims: It is unclear whether the routine follow up (FU) coronary angiography (CAG) regardless of patient's symptoms at 6 to 9 months after successful percutaneous coronary intervention (PCI) with drug-eluting stents (DESs) in diabetic patients (pts) is beneficial or not. **Methods:** The study population consisted of 191 consecutive diabetic patients underwent PCI with DESs from November 2005 to June 2008. Routine FU CAG was performed between 6 to 9 months following index PCI and was decided by individual physician's discretion. Pts died before 6 months were excluded in both groups. Cumulative clinical outcomes up to 2 years were compared between Routine CAG group (n= 127 pts, 74.7%) and Clinical FU group (n= 64 pts, 37.6%). **Results:** A total 170 pts (89.0%) were finished 2-year clinical followed up. Baseline clinical and procedural characteristics were well balanced between the two groups except clinical FU group had lower left ventricular ejection fraction (LVEF). Pts in routine CAG group showed lower incidence of cardiac death up to 2 years without increasing Q-wave myocardial infarction (MI), repeat PCI and all major adverse cardiac events (MACEs, Table). **Conclusions:** In our study, routine CAG FU between 6 and 9 months after PCI with DESs in diabetic pts was associated with lower cardiac death without increasing repeat PCI due to occlusion reflex up to 2 years. We suggest that routine CAG FU may play an important role in reducing mortality of diabetic pts undergoing PCI with DESs.

Baseline Characteristics			
Variables, n(%)	Routine CAG (n = 127 pts)	Clinical FU (n = 64 pts)	P Value
Sex (male)	72 (56.7)	39 (60.9)	0.575
Age	65.12±10.38	67.48±10.43	0.189
Hypertension	91 (71.7)	46 (71.9)	0.974
Dyslipidemia	36 (28.3)	22 (34.4)	0.392
CVA	4 (3.1)	2 (3.1)	0.993
CRI	7 (5.5)	6 (9.4)	0.317
Smoking	51 (40.8)	29 (47.5)	0.383
AMI	30 (23.8)	21 (32.8)	0.104
Previous MI	6 (4.7)	1 (1.6)	0.272
Previous PTCA	12 (9.4)	9 (14.1)	0.336
LVEF	48.68±11.64	43.45±13.56	0.043
MVD	40 (31.5)	18 (28.1)	0.652
Success rate	126 (99.2)	63 (98.4)	0.619

Six months Angiographic & Two years Clinical Outcomes			
Variables, n(%)	Routine CAG (n = 127 pts)	Clinical FU (n = 64 pts)	P Value
Total death	4 (3.4)	8 (15.4)	0.005
Cardiac death	1 (0.8)	4 (7.7)	0.015
Non-Cardiac death	2 (1.7)	2 (3.8)	0.394
Unknown death	1 (0.8)	2 (3.8)	0.171
Recurrent MI			
Q-wave MI	2 (1.7)	0 (0.0)	0.345
Non Q-wave MI	0 (0.0)	1 (1.9)	0.131
Revascularization			
CABG	-	-	-
Ra-PCI	25 (21.2)	7 (13.5)	0.235
TLR-PCI	15 (12.7)	4 (7.7)	0.339
TVR-PCI	21 (17.8)	5 (9.6)	0.172
NonTLR TVR-PCI	6 (5.1)	1 (1.9)	0.339
NonTVR PCI	7 (5.9)	4 (7.7)	0.667
AMI/MACE	38 (32.7)	14 (25.0)	0.858
TLR-MACE	15 (12.7)	7 (13.5)	0.893
TVR-MACE	23 (19.5)	11 (21.2)	0.803
Stent thrombosis (>1Month)	1 (0.8)	0 (0.0)	0.447
Late (1-12Month)	1 (0.8)	0 (0.0)	0.447
Very Late (>12Month)	1 (0.8)	0 (0.0)	0.447