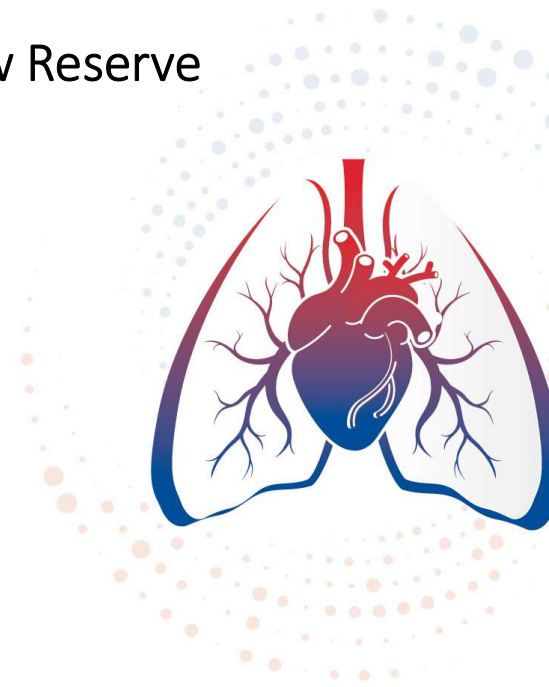


2023 대한심장혈관흉부외과학회

# 제55차 추계학술대회 & APELSO 2023

2023. 11. 02 (Thu) - 11. 04 (Sat), 그랜드 인터컨티넨탈 파르나스 서울

Usefulness of Computed Tomography-Derived Fractional Flow Reserve  
in CABG



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# Purpose

- Coronary computed tomography (CT)-derived fractional flow reserve (FFR)
  - Non-invasive measurement of FFR
  - Good correlation with the invasive FFR
- FFR-guided coronary artery bypass grafting (CABG)
  - Higher graft patency rate compared with angiography-guided CABG
  - Superior in terms of overall survival or myocardial infarction compared with angiography-guided CABG
- Aims of the study
  - To compare the CT-FFR values with the graft patency after CABG
  - To establish cut-off value of CT-FFR for predicting the competitive flow after CABG

# Methods

Oct 2022 ~ Jul 2023  
Isolated CABG  
N=73

4 pts with preop. V-A ECMO support

3 pts cardiac CT not performed

3 pts CT-FFR unanalyzed

CT-FFR values available  
N=63

Patient characteristics	
Female	11 (17.5%)
Age	69 [59.0, 75.0]
Smoking	
Non-smoker	13 (20.6%)
Former smoker	29 (46.0%)
Current smoker	21 (33.3%)
Hypertension	50 (79.4%)
Diabetes Mellitus	37 (58.7%)
Dyslipidemia	45 (71.4%)
Hx of stroke	15 (23.8%)
Chronic renal failure	9 (14.3%)
Chronic obstructive pulmonary disease	4 (6.3%)
Peripheral vascular disease	19 (30.2%)
Hx of PCI	15 (23.8%)
Diagnosis	
Unstable angina	18 (28.6%)
Stable angina	17 (27.0%)
Postinfarct angina	26 (41.3%)
Acute myocardial Infarction	2 (3.2%)
3-VD	40 (63.5%)
2-VD	13 (20.6%)
1-VD	10 (15.9%)
LMD	5 (7.9%)
EuroSCORE (%)	1.28 [0.93, 3.58]

## • CT-FFR values

- HeartMedi+ (AIMedic Inc, Seoul, Republic of Korea)
- Extracts 3-D model of coronary arteries using CT
- FFR calculation via computational fluid dynamics
- Acquired after surgery (in order to maintain blindness)

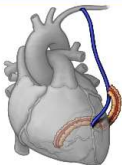
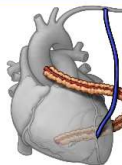
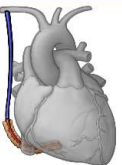
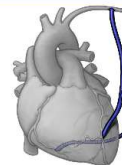
## • Postoperative angiography

- 1 [1,2] postoperative day
- Selective graft + native coronary angiograms

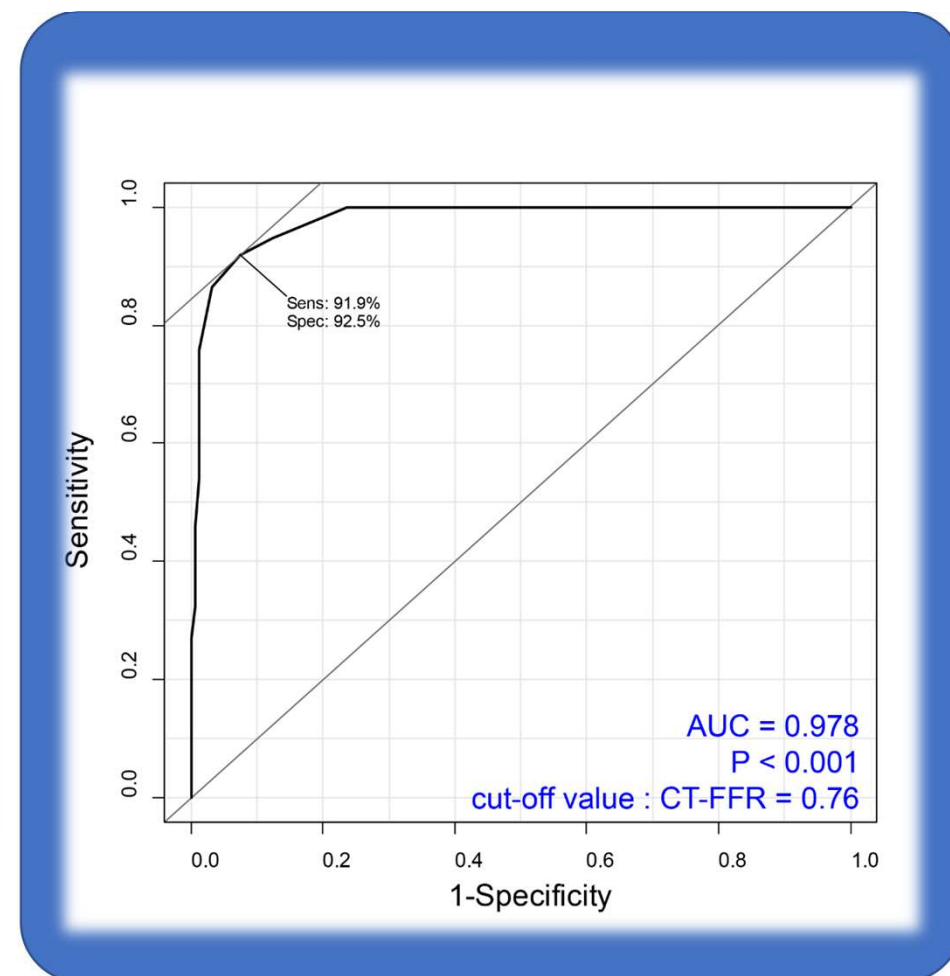
## • Postoperative angiographic findings compared with CT-FFR values of each anastomosis.

# Results

- 198 anastomoses / 63 patients

			
57 (90.5%)	3 (4.8%)	2 (3.2%)	1 (1.6%)

	# of grafts	CT-FFR
Perfectly patent	161 (81.3%)	0.67 [0.50, 0.73]
Bidirectionally competitive	23 (11.6%)	0.80 [0.78, 0.86]
Unidirectionally competitive	13 (6.6%)	0.85 [0.82, 0.86]
Occluded	1 (0.1%)	



# Conclusion

- The diagnostic accuracy of CT-FFR for predicting competitive flow after CABG was excellent
- CT-FFR could be used as a guide for decision making in revascularization