

2023 대한심장혈관흉부외과학회

제55차 추계학술대회 & APELSO 2023

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

Is it Beneficial to Apply **Clinical Pathway**
in Coronary Artery Bypass Grafting?



- **Clinical pathways (CP)** are used in multiple centers to reduce variation, improve quality of care and maximize the outcomes for specific groups of patients.
- Our center has been using a set order for patients undergoing CABG.
In replacement for the set order, we developed a CP for typical CABG patients.
- This study aims to **compare the major quality indicators after applying either set order or CP** in patients receiving CABG.

• Study subjects

- From 2021.08.03 to 2023.03.31
- OPCAB / MIDCAB / ECMO beating CABG
- Diagnosis:
Silent angina, Stable angina, Unstable angina, NSTEMI, STEMI
- **CP activated (CP group) vs CP not activated (Set order group)**
- CP dropout: categorized into CP group

• Clinical Pathway Summary

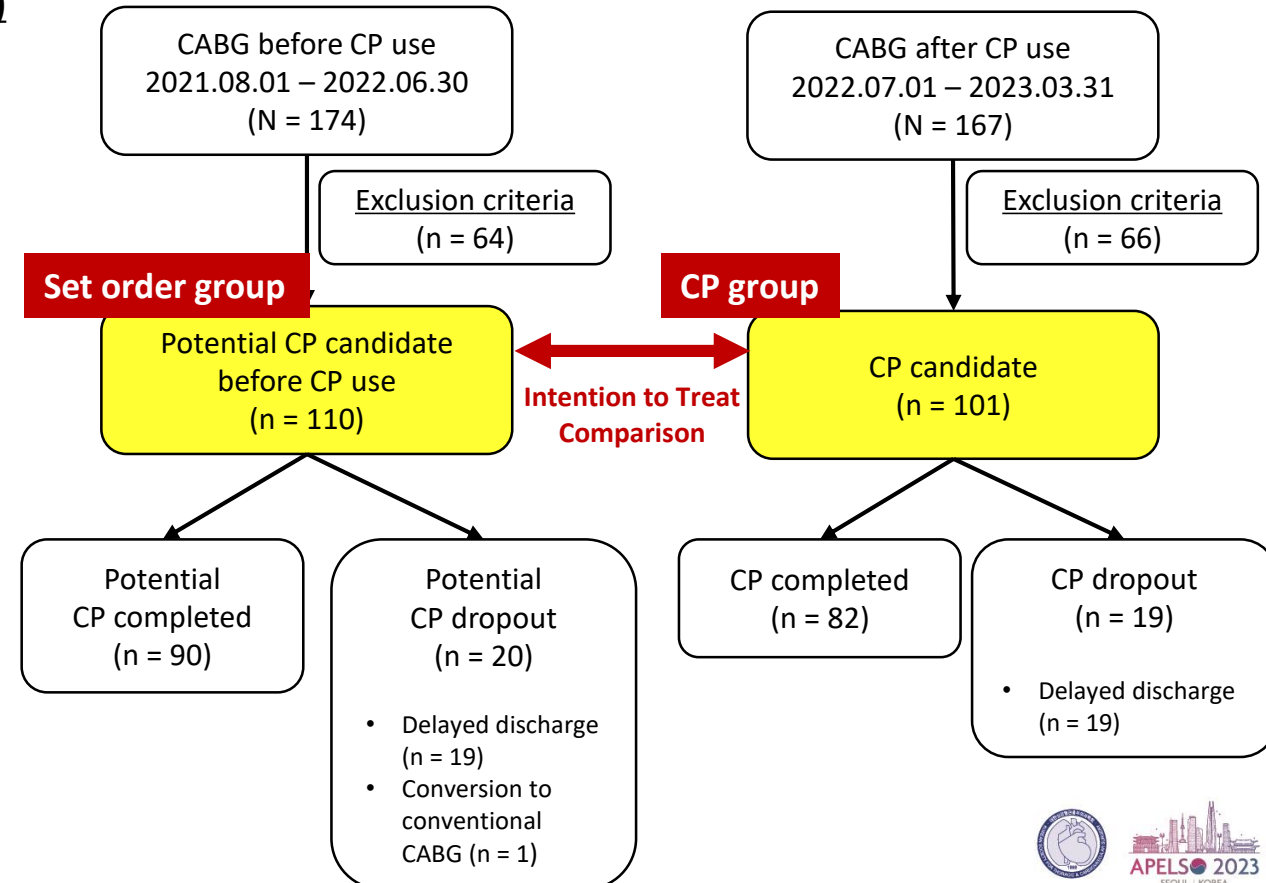
Preop day	Admission, Bed rest, Skin preparation, OP permission, IV fluid, midnight NPO, Antibiotics allergic skin test
OP day	OP, Transfer to ICU, Extubation, Routine postop examination
POD 1-2	Transfer to general ward, ambulation, diet, DAPT, pain control, routine lab, postop cardiac rehabilitation
POD 3-4	DAPT, pain control, routine lab, chest tube removal if possible
POD 5-6	DAPT, pain control, routine lab, Echo if possible
POD 7-9	DAPT, pain control, routine lab, Echo if not done, discharge

Inclusion criteria for CP

- 2022.07.01 - 2023.03.31
- Surgery:
**OPCAB, MIDCAB,
ECMO beating CABG**

Exclusion criteria

- Above 80 years old
- Underlying COPD
- HD or CAPD
- LVEF ≤ 35



Baseline patient characteristics

	Set order group	CP group	P value
Age	66.0 ± 100.4	67.4 ± 9.1	0.268
BMI	24.9 ± 3.6	24.6 ± 3.4	0.485
Cr	1.00 ± 0.2	1.08 ± 0.5	0.124
GFR	82.3 ± 22.3	79.2 ± 20.0	0.297
Troponin I	1.84 ± 8.7	1.47 ± 6.6	0.775
EuroSCORE II	1.24 ± 0.8	1.23 ± 1.2	0.917
HTN	76 (69.1%)	74 (73.3%)	0.545
CVA	26 (23.6%)	14 (13.9%)	0.080
UA	47 (43.1%)	45 (44.6%)	0.890
NSTEMI	21 (19.3%)	16 (15.8%)	0.588
STEMI	3 (2.8%)	2 (2.0%)	> 0.99
Endarterectomy	22 (20.0%)	23 (22.8%)	0.737

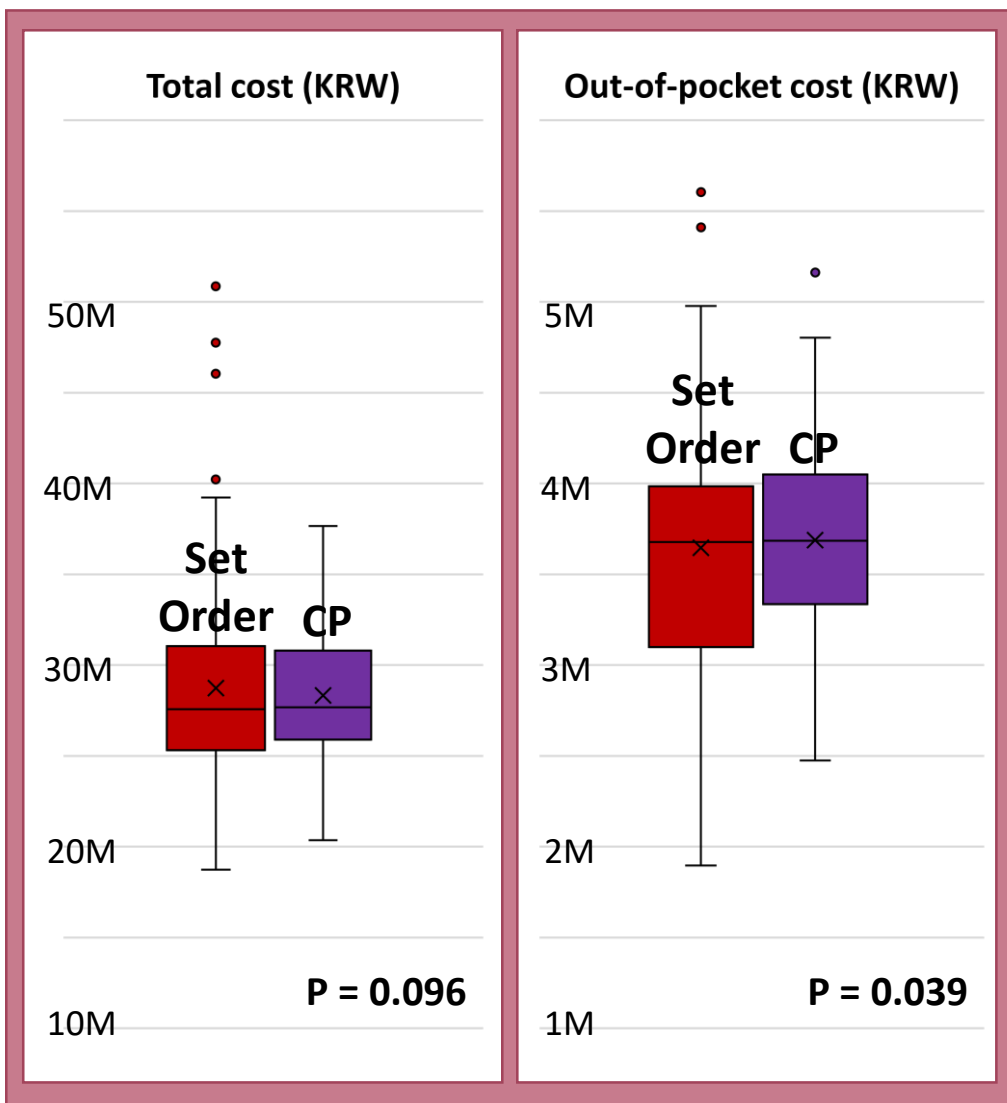
Major quality indicators

	Set order group	CP group	P value
Ventilator_Hr	10.0 ± 29	8.1 ± 12	0.533
OP Time	254.6 ± 53	236.9 ± 52	0.015
ICU Stay	39.5 ± 44	52.4 ± 47	0.044
Discharge POD	9.6 ± 10	10.3 ± 11	0.629
Mortality	2 (1.8%)	3 (3.1%)	0.667
30 days ReAdm	15 (13.6%)	8 (8.3%)	0.271

No significant difference in baseline patient characteristics between Set order and CP group.

No significant difference in major quality indicator between Set order and CP group.

Cost analysis (head-to-head)



Multivariable analysis for cost

Total Medical Cost

	Beta	P value
CP group	0.026	0.486
LVEF	-0.020	0.603
Preop BUN	-0.140	0.002
Preop Cr	-0.146	0.002
Preop GFR	-0.110	0.045
EuroScore	-0.012	0.775
OPCAB	-0.128	0.001

Out-of-Pocket Cost

	Beta	P value
CP group	0.058	0.202
LVEF	0.051	0.265
Preop BUN	-0.059	0.267
Preop Cr	0.115	0.043
Preop GFR	-0.005	0.945
EuroScore	-0.015	0.782
OPCAB	-0.096	0.040

- Total medical cost: similar in both groups
- **Out-of-pocket cost: higher in CP group**

CP activation **was not a significant predictor for both total medical cost and out-of-pocket cost.**

- The application of Clinical Pathway (CP) did not have any significant impact on quality indicators such as hospital stay, ICU stay, or readmission rate.
- CP activation did not influence total medical cost and out-of-pocket cost in CABG.
- **Application of a Clinical Pathway does not lead to significant improvement in major quality indicators of CABG, when a set order is already in place.**