

2023 대한심장혈관흉부외과학회

제55차 추계학술대회 & APELSO 2023

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

Changes in Antiplatelet Drug Response and Clinical Usefulness of Antiplatelet Drug Response Assay in Patients Undergoing Off-pump Coronary Artery Bypass Grafting



- Antiplatelet agents for coronary artery disease have inter-individual on-treatment response variability
- Aspirin resistance have been reported to occur after CABG, especially after on-pump CABG (ONCAB)
- Aim of this study
 - To compare antiplatelet drug responses before & after off-pump CABG (OPCAB)
 - To elucidate the clinical usefulness of antiplatelet drug response assay

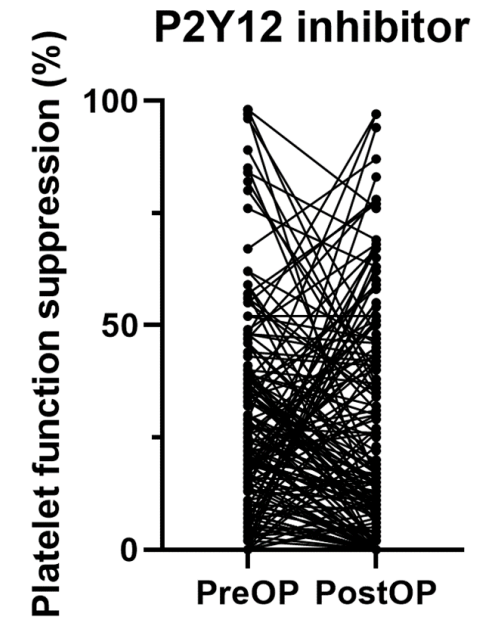
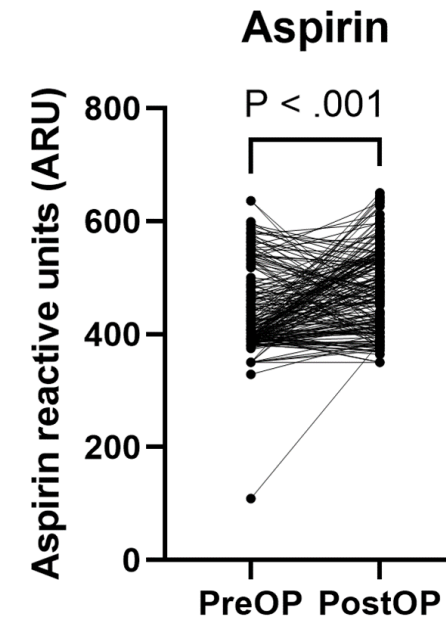
- Retrospective cohort study in a single center
- 214 patients who underwent isolated OPCAB between December 2021 and June 2023
- Platelet drug response assay (PDRA)
 - Using turbidimetric whole blood assay according to pre-administrated drug
 - VerifyNow system (Accumetrics, San Diego, Calif)

Anti-platelet drug	Pre-OP	Post-OP	Both
Aspirin (n, %)	203 (94.9)	200 (93.5)	191 (89.3)
P2Y12 inhibitor (n, %)	175 (81.8)	195 (91.1)	164 (76.6)

- Endpoints
 - Changes in PDRA values before & after OPCAB
 - Early clinical outcomes: ischemic/bleeding complications, transfusion requirements, perioperative changes in hematocrit/hemoglobin

- PDRA for aspirin both before and after surgery was performed in 191 patients, and 164 patients for clopidogrel
- Mean aspirin reaction unit (ARU) was significantly higher in the postoperative period
- There were no significant differences in the rate of aspirin responder and the degree of platelet function suppression by clopidogrel

Variables	n	Pre-OP	Post-OP	p-value
Aspirin reaction unit (ARU)		437.6 ± 72.1	477.5 ± 73.5	< 0.001
	191			
Aspirin responder, n (%)		171 (89.5%)	160 (83.8%)	0.127
Platelet function suppression by P2Y12 inhibitor (%)	164	26.9 ± 23.0	24.7 ± 25.0	0.306



- Clinical outcomes upon according to preoperative aspirin response
- Greater decline of intraoperative hematocrit and postoperative hemoglobin levels were found in aspirin responders
- No significant difference in ischemic/bleeding complications, early clinical outcomes, and transfusion requirements except postoperative RBC transfusion

Variables	Responder (n=182)	Non-responder (n=21)	p-value	Variables	Responder (n=182)	Non-responder (n=21)	p-value
Ischemic complications, n (%)				Transfusion, n (%)			
Immediate graft occlusion	10 (5.5%)	0 (0.0%)	0.603	Intraoperative RBC	113 (62.1%)	17 (81.0%)	0.088
Perioperative MI	3 (1.6%)	0 (0.0%)	0.999	Intraoperative platelet	4 (2.2%)	2 (9.5%)	0.119
Stroke	1 (0.5%)	1 (4.8%)	0.197	Postoperative RBC	49 (26.9%)	11 (52.4%)	0.015
Bleeding complications, n (%)				Postoperative platelet	18 (9.9%)	3 (14.3%)	0.462
Bleeding re-operation	1 (0.5%)	0 (0.0%)	0.999	Intraoperative hematocrit decline, maximum (%)	5.8 ± 3.1	3.6 ± 2.4	0.002
Operative mortality	1 (0.5%)	0 (0.0%)	0.999	Postoperative hematocrit decline, maximum (%)	8.9 ± 4.4	7.0 ± 6.6	0.086
New-onset atrial fibrillation	53 (29.1%)	9 (42.9%)	0.196	Postoperative hemoglobin, maximum (mg/dL)	3.0 ± 1.5	2.1 ± 2.2	0.023
Acute kidney injury	6 (3.3%)	1 (4.8%)	0.540				
Low cardiac output syndrome	4 (2.2%)	1 (4.8%)	0.424				
Respiratory complications	7 (3.8%)	0 (0.0%)	0.999				

- Aspirin responsiveness might decrease early after OPCAB whereas clopidogrel responsiveness maintained
- Use of dual antiplatelet agents after OPCAB might be helpful to prevent ischemic complications due to drug resistance to antiplatelet agents
- Further study might be needed to elucidate the association between preoperative PDRA values for aspirin and clinical outcomes