

Impact of Cardiac Injury After Recanalization of Chronic Total Occlusions by Retrograde Approach Analyzed by Echocardiography (speckle tracking and RT3DE)

¹Saiseikai Yokohama-city Eastern Hospital

Hideyuki Takimura¹, Toshiya Muramatsu¹, Reiko Tsukahara¹, Yoshiaki Ito¹, Tsuyoshi Sakai¹, Hirishi Ishimori¹, Keisuke Hirano¹, Masatsugu Nakano¹, Akiyoshi Moriyama¹, Masahiro Yamawaki¹, Shinya Sasaki¹, Motoharu Araki¹, Yasunari Sakamoto¹, Ikki Komatsu¹

Background: Retrograde approach through the collateral channels has been recently improve the success rate of percutaneous coronary intervention (PCI) of chronic total occlusions (CTOs). However, the specific complications of retrograde approach not well establishes. Objectives: To investigate the safety of retrograde approach via transseptal and epicardial pathways for CTOs. Method: From September 2008 until April 2009, 58 patients treated for CTOs. Retrograde approach via septal and epicardial collaterals was used in 18 (31.0%) patients and in 40 (69.0%) patients was used only antegrade approach. Echocardiography and cardiac markers (creatinine kinase;CK, Troponine T; TnT) were assessed before and within 8-12 hours post procedure. Left ventricular (LV) wall motion of area using collateral, LV ejection fraction (EF) and LV volumes were quantified on strain analysis by 2D-speckle tracking and Real-time Three-dimensional echocardiography. Results: No difference in clinical events was observed between two groups. Cardiac markers increased in a few patients among PCI using retrograde approach. Those patients were unsuccessful cases, used collateral channels were showed low flow grade. However LV wall motion was unchanged by echocardiography between before and after procedure. In patients using retrograde approach, mean circumferential strain ($-19.4 \pm 7.9\%$ to $-18.2 \pm 7.3\%$; $p=0.41$), radial displacement ($0.56 \pm 0.18\text{cm}$ to $0.50 \pm 0.17\text{cm}$; $p=0.31$), longitudinal strain ($-19.9 \pm 3.8\%$ to $-22.7 \pm 2.5\%$; $p=0.13$), 3D volume EF ($45.4 \pm 11.3\%$ to $50.2 \pm 17.4\%$; $p=0.29$) were unchanged. Conclusion: PCI for CTO using retrograde approach via transseptal pathways did not cause cardiac injury during procedure. Thus, retrograde approach is safety. Furthermore, we want to study in the future about long term result about this PCI techniques.