

C025

Percutaneous coronary intervention with small amounts of contrast medium improved not only the cardiac, but renal function in a patient with severe heart and renal failure.

A 73-year-old American male developed sudden onset dyspnea and was referred to our hospital. He had hypertension, dyslipidemia, and diabetes mellitus. The initial chest X-ray showed congestion on the bilateral lungs. The electrocardiogram disclosed negative T wave in the precordial and high lateral leads. The blood examination disclosed high value of creatinine (4.1 mg/dl) and troponin-I (267 pg/ml). The ultrasound cardiography (UCG) showed diffuse hypokinesis and 28% of left ventricular ejection fraction (LVEF). After improvement of congestive heart failure, he underwent coronary angiogram (CAG) with using 14 ml of contrast medium, which revealed the coronary arteries were left dominant system, 75–90% stenosis of the proximal left anterior descending artery (LAD), and chronic total occlusion of distal left circumflex artery (LCx). He did not accept coronary artery bypass grafting (CABG) in terms of the cost because he did not have Japanese medical insurance and CABG is more expensive than PCI. We attempted to perform PCI with no/less contrast medium.

Six days after the CAG, PCI for the LAD and LCx lesions was performed. Initial contrast radiography was not acquired. The procedure was performed with reference to the previous CAG. Axel[?] passed the LAD lesion and one more Axel[?] was deployed in the diagonal branch for the landmark of balloon dilatation. Eagle Eye[?] did not pass the lesion, the LAD lesion was dilated with Traveler[?] 2.0*15mm and ScoreFlex[?] 2.5*10mm. We observed the lesion characteristics and marked possible stent landing zone with Eagle Eye[?]. The LAD lesion included superficial calcification partially. Axel[?] in the diagonal branch was removed and advanced to the LCx. Promus Premier[?] 3.0*38mm was deployed with reference to the wire in the LCx. The stent was implanted as we intended and stent apposition was confirmed by Eagle Eye[?]. At this point, we never used contrast medium. And then, Axel[?] with finecross[?] was advanced to the CTO lesion. Prior to penetration of the proximal cap, tip injection with 2 ml of contrast medium was done. Axel[?] was changed to Gaia first[?]. On the way of the CTO lesion, the wire seemed to stray into pseudo-lumen in the viewpoint of wire motion and the physician's touch. Finecross[?] was removed and Crusade[?] was mounted on the Gaia first[?]. The parallel wire technique with Gaia second[?] was performed with several times of contrast injection. Penetrated the distal cap with Gaia second[?] was achieved and it was passed distal artery smoothly. Finecross[?] was passed the lesion easily and Gaia second[?] was changed to Axel[?]. Eagle Eye[?] disclosed that the wire passed across the true lumen. The lesion was dilated with Traveler[?] 2.0*15mm, followed by implantation of Xience Alpine[?] 2.75*38mm. Post-dilatation with NC Traveler[?] 3.0*15mm was performed in the proximal site in the stent. We injected 18 ml of contrast medium for the procedure. However, we added 24ml to acquire contrast imaging. As the coronary flow improved, the amount of contrast medium to acquire clear imaging seemed to increase much more. Finally, we used 42ml of contrast medium.

A month later, LVEF was improved to 48%. Contrast induced acute kidney injury never occurred. Serum creatinine decreased from 4.1 mg/dl to 2.9 mg/dl. The renal function seemed to be affected impaired cardiac function.

PCI may be safe and effective even in the subjects with severe impaired cardiac and renal function by a small scheme to reduce dose of contrast medium.