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Clinical outcomes 1 year after filter protection during percutaneous coronary intervention in patients with attenuated plaque identified by intravascular ultrasound

K. Hibi[1], K. Kozuma[2], S. Sonoda[3], T. Endo[4], H. Tanaka[5], R. Koshida[6], T. Ishihara[7], T. Kume[8], K. Tanabe[9], Y. Morino[10], Y. Ikari[11], K. Fujii[12], T. Yamanaka[13], K. Kimura[1], T. Isshiki[14]

[1]Yokohama City University Medical Center, Yokohama, Japan; [2]Teikyo University School of Medicine, Division of Cardiology, Tokyo, Japan; [3]University of Occupational and Environmental Health, Second Department of Internal Medicine, School of Medicine, Kitakyushu, Japan; [4]Saiseikai Yokohamashi Nanbu Hospital, Division of Cardiology, Yokohama, Japan; [5]Tokyo Metropolitan Tama Medical Center, Department of Cardiology, Tokyo, Japan; [6]Toyohashi Heart Center, Department of Cardiovascular Medicine, Toyohashi, Japan; [7]Kansai Rosai Hospital, Cardiovascular Center, Amagasaki, Japan; [8]Kawasaki Medical School, Department of Cardiology, Okayama, Japan; [9]Mitsui Memorial Hospital, Division of Cardiology, Tokyo, Japan; [10]Iwate Medical University School of Medicine, Division of Cardiology, Department of Internal Medicine, Morioka, Japan; [11]Tokai University, Department of Cardiology, Isehara, Japan; [12]Sakurabashi-Watanabe Hospital, Department of Cardiology, Osaka, Japan; [13]Yokohama City University, Department of Biostatistics, Yokohama, Japan; [14]Ageo Central General Hospital, Division of Cardiology, Ageo, Japan

On behalf of the VAMPIRE 3 investigators

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Background: In the VAMPIRE 3 (VAcuuM asPIration thrombus REemoval 3) trial, we have previously shown that selective use of distal filter protection during percutaneous coronary intervention (PCI) decreased the incidence of no-reflow phenomenon and was associated with fewer in-hospital serious adverse cardiac events than conventional PCI in patients with attenuated plaque ≥5mm. However, whether the early efficacy of distal embolic protection translate into long term clinical benefit is unknown.

Methods: Patients with acute coronary syndrome (ACS) with attenuated plaque ≥5mm were assigned to distal protection (DP) (n=98) or conventional treatment (CT) (n=96). The primary end point of the incidence of no-reflow phenomenon during PCI and the secondary end point of in-hospital serious adverse cardiac events has been reported previously. The rate of a major adverse events, a composite of death from any cause, non-fatal myocardial infarction, or unplanned target vessel revascularization (TVR) at 1 year was the prespecified secondary end point of the trial. All clinical endpoint events were adjudicated by an independent Clinical Event Committee.

Results: Major adverse events at 1 year occurred in 12 patients (12.2%) in the DP group and in 3 patients (3.1%) in the CT group (P=0.029). The difference was driven by a higher risk of TVR (11 [11.2%] vs. 2 [2.1%], p=0.018) in the DP group compared with the CT group. In patients treated with bare metal stents (n=42), major adverse events occurred in 25.0% of the patients in the DP group and in none of the patients in the CT group (P=0.029), whereas in patients treated with drug eluting stents (n=152), rates of major adverse events were similar between the groups (8.1% vs. 3.9%, p=0.32). Rates of cardiac death were not significantly different (1.0% vs. 1.0%, p=1.00). No definite stent thrombosis was observed in either group.

Conclusions: In the VAMPIRE 3 trial of patients with ACS with attenuated plaque ≥5mm, the 1-year rates of major adverse events in the distal protection group were higher than in the conventional treatment group. This effect could be mitigated by the use of drug eluting stents.