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Re-evaluating the value of innovative rotator cuff techniques in the modern era of angioplasty

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AUTHORS' CONTRIBUTION: (A) Study Design · **(B)** Data Collection . **(C)** Statistical Analysis · **(D)** Data Interpretation · **(E)** Manuscript Preparation · **(F)** Literature Search · **(G)** No Fund Collection

ABSTRACT

To introduce a modified atherosclerotic ablation (RA) procedure and to study the early and medium-term outcomes of multivariate percutaneous coronary intervention (PCI) facilitating RA in group Elderly patients has a higher cardiovascular risk. Previous studies of RA outcomes have been limited to small sample sizes and low-risk populations. Method from January 2013 to November 2015, 1169 consecutive patients treated with modified RA-assisted PCI was retrospectively recruited, including new calcified lesions and restenosis in the stent. Patients were followed up regularly for at least 1 year. Major adverse cardiac events (MACEs) were analyzed for all participants according to different strategies. Cox regression analysis was performed to identify risk factors for the events. Result. The mean age of patients was 75 years, with 11.7% of patients on maintenance haemodialysis. Most lesions (99.9%) were complex (American Heart Association class B2/C) and 68.3% were treated with RA + drug-eluting stents (DES). Angiography was successful in 97.8% of cases, of which 1.7% (20/1169) cases of coronary perforation (including perforation of wires). The incidence of MACE was 20.5% and 26.8% at 1 year and 2 years of follow-up and was mainly due to target lesion revascularization (TLR) (10.3% and 12.5%, respectively. The RA + DES strategy had the lowest MACE at 2 years, compared with RA + drug-coated balloon and old RA + balloon angioplasty (14.5%, 30.5%, and 26.0%, respectively). The modified PR technique is a safe and effective tool in the modern PCI era, even in high-risk patients. TLR levels are relatively high but tolerable in these complex lesions.

Keywords: Rotator cuff tears; Partial thickness tears; Full thickness tear; Natural history; Ultrasonography; Magnetic resonance imaging; Single row repair; Double row repair; Healing

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INTRODUCTION

In modern PCI practice, alternate atherosclerotic resection is considered an adjunct to the management of severe fibrotic or calcified coronary lesions by "differential ablation" and "transposition". Orthogonal friction RA has been used in all major phases of percutaneous coronary intervention with the use of single-balloon angioplasty (POBA), bare metal stents drug-eluting stents and balloon angiography. Drug coverage RA has shown favorable effects in complex PCI in cumulative studies such as the STRATAS, ROTATE, ROTAXUS and DCB studies. However, RA volumes have been reported to vary significantly during these two decades and between individual centers, ranging from 0.6% to 20% [1]. Furthermore, the use of PR has shown a decreasing trend due to the introduction of DES, the disappointing rate of restenosis, and the lack of impact on major adverse cardiac events (MACE) [2]. In fact, these studies mainly investigated the effects of RA in low- or intermediate-risk patients [3], including their relatively young age (mean 70 years) and the Less complicated lesions (50–90%) [4]. However, in Japan, the trend of social aging has resulted in patients with more complicated PCI situations, severe calcifications, and high rates of diabetes and concomitant hemodialysis, whereas Studies evaluating the effects of RA in this high-risk group of patients are rare [5].

DISCUSSION

On the other hand, the use of PR has never ceased in daily practice. In particular, with advances in PCI devices and perioperative preparation with new drugs, modern RA techniques have also evolved over the past two decades, improving PCI performance [6]. Studies have shown that operator skill and performance in RA are important for prognosis [7]. Therefore, more knowledge and training is required to implement RA in modern clinical practice. Over the past 5 years, the Sapporo Cardiology Clinic (SCVC) has modified the PR technique and obtained favorable results for complex PCI [8]. With the aim of better evaluating the performance of RA, this study introduced the use of a modified RA technique and retrospectively evaluated its "real" results in a large group of high-risk patients [9]. High muscle mass in the contemporary era with angioplasty [10]. From January 2013 to November 2015, data from a consecutive series of patients treated with PCI-assisted RA were collected retrospectively from SCVC. Indications for RA include moderate to severe superficial calcified lesions seen on intravascular ultrasonography (IVUS)/optical coherence tomography or calcium density imaging linearity

on both sides of the target lesion visible under fluoroscopy; calcified lesions that make it difficult for imaging probes to pass, where improper stent placement or expansion could be expected; calcified bone lesions and true branching lesions; chronic complete occlusion (CTO) lesion, in which the conductor has been positioned correctly but the low balloon cannot be raised; and selected cases of diffuse restenosis in stents. The decision to do RA and PCI is left to the discretion of an experienced, high volume trader. Cases of autologous RA, using sub optimally deployed stents, rotation at the same PCI stage, and incomplete follow-up data were excluded. Clinical follow-up was performed regularly at least every 2 years in outpatient clinics by operators. Computed tomography coronary angiography is performed regularly within one year and coronary angiography is recommended if clinically necessary (e.g., onset of new symptoms in the patient, signs of myocardial ischemia). Or high clinical suspicion for severe coronary artery disease). Informed consent was obtained from each patient. Data were collected using a standardized case report template to document demographic and clinical characteristics as well as follow-up and procedural data. Immediately prior to surgery, patients received intra-arterial or intravenous infusion of heparin (70–100 IU/kg) to maintain an activated clotting time above 250 s. Dual antiplatelet therapy with aspirin and thienopyridine (ticlopidine, 100 mg twice daily or clopidogrel, 75 mg once daily) used for at least one year after PCI and continued for as long as possible with aspirin or another other antiplatelet. AR was performed using a Rotablator™ (Boston Scientific, Natick, MA, USA). According to Japanese insurance policy, up to two strawberries are used as needed.

CONCLUSION

The choice of stenting (DES/BMS), DCB or POBA is at the discretion of the operator. In accordance with the general principle of RA efficiency the modified RA technique used in SCVC is illustrated. It is briefly described as follows the platform is placed just above the lesion. In diffuse and distal lesions, the "foundation" will advance with segmental resection for additional support. Each platform was validated by contrast injection to ensure good directional flow in the presence of burrs. With the RA-cocktail (1000ml saline, 3000U heparin, 1.25mg verapamil and 5mg nitro-glycerine), simultaneous enema with an intra-coronary lavage cocktail (Ringer's lactate 500ml, nicorandil 12mg and nitro-glycerine 2mg was used to mechanical injection guide catheter cooling. Rotablator turbine and remove pulverized tissues through coronary microvascular. The initial size of the ridge depends on the ability of the IVUS probe to pass through the lesion as well as the diameter of the vessel. If the IVUS probe can pass through the lesion, a ≧1.75 mm drill bit will be used initially. Otherwise, ≦1.5 mm will be used. The "Enhanced" strategy would be used for sufficient resection if the calcium "napkin ring" remained, and a larger ridge would be used for even more aggressive resection when a safe IVUS image was observed. Improved mower with slow flight motion and short run time and at "high" speed (160,000–220,000 rpm) for side travel and at "low" speed for polishing, with a proprietary technician monitoring rotation/min versus time during resection. IVUS/OCT is required for pre- and post-assessment lesions. The differences between modified RA and traditional RA have been summarized in terms of "initial drill size", "ablation rate", "RA flow" and "drill motion" and are illustrated in Supplementary.

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