Two-year clinical performance of Absorb BVS compared to Xience EES in ST-segment elevation myocardial infarction: a pooled analysis of AIDA and COMPARE-ABSORB trials

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Introduction: Bioresorbable vascular scaffolds (BVS) use appears theoretically attractive in patients presenting with ST-segment elevation myocardial infarction (STEMI) as acute lesions are generally composed of soft plaques, in which optimal BVS deployment and expansion is easier to achieve. Furthermore, those patients are generally younger and would benefit longer from the promise of vascular restoration therapy.

Purpose: In this patient level pooled analysis of two clinical trials, we evaluated the clinical outcomes of Absorb BVS versus Xience everolimus-eluting stent (EES) in STEMI patients at 2-year follow-up.

Methods: We performed an individual patient-level pooled analysis of the AIDA and COMPARE-ABSORB trials in which 3515 patient were randomly assigned to Absorb BVS (n=1772) or Xience EES (n=1743). Clinical outcomes in STEMI patients were analyzed by randomized treatment assignment cumulative through 2 years. The primary efficacy outcomes measure was target lesion failure (cardiac death, target-vessel myocardial infarction or target lesion revascularization), and the primary safety outcome measure was device thrombosis at 2-year follow-up.

Results: 350 (19.8%) STEMI patients were allocated to Absorb BVS versus 328 (18.8%) to Xience EES. The mean age of patient presenting with STEMI was 60 years old, 76.0% were males and 15.3% had diabetes mellitus. At 2-years target lesion failure occurred in 8.4% of BVS STEMI patients and 6.2% of EES STEMI patients (p=0.253). The 2-year rates of cardiac death (2.6% vs 1.6%, p=0.332), TV-MI (4.7% vs 2.5%) and TLR (6.8% vs 4.1%) were not significantly different. The 2-year incidence of definite device thrombosis was 4.7% in Absorb BVS versus 1.8% in Xience EES (p=0.045).

Conclusion: In the present patient-level pooled analysis of the AIDA and COMPARE-Absorb trials, BVS was associated with increased rates of device thrombosis in STEMI patients compared to Xience EES.

Two-year clinical outcomes in STEMI

	Absorb (n=350)		Xience (n=328)		p-value
POCE[+]	50	14.4%	42	13.0%	0.542
TLF[*]	29	8.4%	20	6.2%	0.253
Cardiac death	9	2.6%	5	1.6%	0.332
TV-MI	16	4.7%	8	2.5%	0.128
TLR	23	6.8%	13	4.1%	0.121
Definite ST	16	4.7%	6	1.8%	0.045

[+]Composite of all-cause death, MI or revascularization. [*]Composite of cardiac death, TV-MI or TLR. MI = myocardial infarction; TV-MI = target vessel MI; TVR = target vessel revascularization; TLR = target lesion revascularization; ST = stent thrombosis.