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Two- Year Intravascular Ultrasound Assessment of the Changes in Eccentricity and Symmetry Indexes in Metallic and Bioresorbable Platform Devices

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Background and Aims : We report the dynamic changes in geometrical parameters of coronary vessels treated with either the temporary BVS or permanent everolimus-eluting metallic stent (XIENCE V [XV]), to assess if differences appear at a period of up to 2 yearsMethods : Thirty-three patients from the ABSORB Cohort B (BVS) and 48 patients from the SPIRIT II (XV) trials were examined with intravascular ultrasound (IVUS) at baseline (BL), 6 months (6m) and at 2-year (2yr) follow-up. The eccentricity (minimum diameter/maximum diameter) and symmetry indices ([maximum - minimum diameter]/maximum diameter) of lumen, scaffold/stent and vessel areas were calculated frame-by-frame and expressed as an average per device.Results : The scaffold of the BVS exhibited a significantly lower eccentricity index at baseline (BVS: BL 0.874 ± 0.034, 6m 0.866±0.026, 2yr 0.883 ± 0.024; XV: BL 0.924 ± 0.025, 6m 0.932 ± 0.020, 2y 0.930 ± 0.028; p&lt0.001) and higher symmetry index (BVS: BL 0.318 ± 0.070, 6m 0.337 ± 0.077, 2yr 0.360 ± 0.075; XV: BL 0.249 ± 0.083,6m 0.222 ± 0.066, 2yr 0.229 ± 0.077, p &lt 0.001) and these differences were being maintained at 2 years. The vessel of BVS exhibited a significantly greater symmetric index at 2 years (BVS: 2yr 0.289 ± 0.061, XV: 2yr 0.231± 0.070, p=0.003)Conclusion : The BVS demonstrated significantly different geometrical characteristics compared to XV at implantation, with these differences being maintained up to 2 years. BVS treated vessels demonstrated similar geometrical characteristics at implantation, with greater symmetric index at 2 year compared to XV.