

## Outcomes after Everolimus Eluting Coronary Stent Implantation in Latin American Women

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Coronary artery disease (CAD) is the leading cause of death in men and women<sup>1</sup>, and drug eluting stents (DES) have become a mainstay of percutaneous coronary interventions. Increased attention is now being paid to outcome differences between different geographic regions and between genders. Prior studies have shown that Latin Americans have high rates of cardiovascular disease and may have worse outcomes compared to patients in other regions.<sup>2-4</sup> Latin American women may represent a particularly high-risk patient population since female gender has also been implicated as a risk factor for worse outcomes after percutaneous coronary interventions.<sup>5,6</sup>

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Prior studies have demonstrated the superior efficacy and safety of the XIENCE™ V everolimus eluting stent (Abbott Vascular, Santa Clara, CA, USA) compared to first generation DES.<sup>7,8</sup> The XIENCE™ V SPIRIT Women Study was the first dedicated prospective multicenter registry of women with *de novo* CAD.<sup>9</sup> Approximately 10% of the study population in the SPIRIT Women registry was from Latin America allowing for a unique opportunity to evaluate outcomes of Latin American women compared to other women after receiving the XIENCE™ V stent.

In this issue of the **Revista Brasileira de Cardiologia Invasiva**, Grinfeld et al.<sup>10</sup> report an analysis of the SPIRIT Women study specifically comparing outcomes of women in Latin America to women from other countries. Overall women from Latin America had higher rates of co-morbid disease including higher rates of hypertension, prior myocardial infarction and family history of CAD. Furthermore, they had worse baseline angiographic characteristics such as smaller reference vessel diameters and longer lesion lengths. These high rates of known CAD risk factors in Latin

American patients have been previously reported and have been implicated in the overall high CAD rates seen in this population.<sup>4,11,12</sup> Hypertension, diabetes and prior myocardial infarction rates appeared to be higher in this study compared to prior studies in Latin American patients.<sup>11</sup> This is not completely unexpected since women in general have higher rates of these traditional risk factors than men. This study's all-female population has similar rates of comorbidities compared to other female populations included in clinical trials.<sup>13</sup>

Despite these differences in baseline characteristics, this study found that Latin American women had similar rates of the primary composite endpoint (all cause death, myocardial infarction and target vessel revascularization) compared to non-Latin American women (10.1% vs. 12.1%;  $P = 0.58$ ). Furthermore, 1-year mortality rates were low in both population subsets (0.7% in Latin American women vs. 1.6% in non-Latin American women). Rates of target vessel failure, death and myocardial infarction in this study are comparable to results seen in other real world studies.<sup>14</sup>

This analysis offers encouraging data supporting the use of XIENCE™ V in high-risk populations including Latin American women. Unlike prior studies which showed outcome differences in Latin American patients compared to non-Latin American patients, this study demonstrated similar outcomes between Latin American and non-Latin American women treated with an everolimus eluting stent. This discrepancy may be related to differences in study inclusion criteria. Prior studies demonstrating worse outcomes in Latin American patients included patients presenting with acute coronary syndromes regardless of whether the patient was going to receive invasive management or not. In these studies, treatment discrepancies between Latin and North American countries were described and patients in Latin America were less likely to receive revascularization.<sup>4</sup> Thus, the lesser invasive treatment

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of patients in Latin America likely contributed to the overall worse outcomes seen in those studies.<sup>4</sup> In contrast, the SPIRIT Women registry only included women who were receiving percutaneous coronary interventions therefore eliminating confounding invasive versus conservative management differences that could have impacted outcomes. Thus, based on this small patient analysis, women in Latin America likely benefit from the same invasive treatments as women in other geographical regions.

The specific stent used in this study may have also contributed to the outcome similarity seen between geographic populations. In this study, Latin American women had higher rates of small vessels with long lesions, which are known to have worse outcomes compared to patients with larger vessels.<sup>11,12</sup> Different types of DES are not equivalent in treating small vessel disease<sup>13</sup>, and prior studies have demonstrated the efficacy of the everolimus eluting stent in treating small vessel CAD compared to other stent types.<sup>11,14</sup> The demonstrated beneficial outcomes of the XIENCE™ V stent in small vessels and long lesions may have helped narrow outcome differences observed between Latin and non-Latin American women. Outcome comparisons between Latin American women and other women after treatment with stents that are less successful at treating small vessel disease has not been reported

This analysis of a real-world female population offers promising data for the treatment of Latin American women. In spite of higher rates of co-morbid conditions and high-risk angiographic features, Latin American women treated with the everolimus eluting stents for CAD have similar low rates of clinical outcomes compared to other women.

## CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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