

## Left atrial appendage remodeling following percutaneous closure with WATCHMAN 2.5 and FLX: insights from the WATCH-DUAL registry

K. Mahmoudi<sup>1</sup>, R. Galea<sup>2</sup>, S. Elhadad<sup>3</sup>, L.Z. Rezine<sup>3</sup>, F. Sebag<sup>1</sup>, Q. Landolff<sup>1</sup>, L. Raber<sup>2</sup>, N. Amabile<sup>1</sup>

<sup>1</sup>Institut Mutualiste Montsouris, Paris, France; <sup>2</sup>Inselspital - University of Bern, Bern, Switzerland; <sup>3</sup>JOSSIGNY SITE OF GHEF MARNE LA VALLEE, Jossigny, France

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**Background:** Percutaneous left atrial appendage closure (LAAC) has emerged as a valid option for prevention of thromboembolic events in patients with non-valvular atrial fibrillation and contraindications for oral anticoagulation. The most recent devices have been created to improve the intervention efficiency and to allow the procedure in a wider range of anatomies. The new-generation Watchman FLX (WMFLX) features a new design but its in vivo performances have not been compared to the previous WATCHMAN 2.5 (WM2.5) prosthesis. Hence, the data regarding conformability, compression and device-related LAA remodeling are scarce.

**Purpose:** To compare the anatomical results of WM2.5 and WMFLX implantation and impact on LAA dimensions.

**Methods:** This study included LAAC patients from the WATCH-DUAL registry who benefited from a pre- and post-intervention CT scan. The WATCH-DUAL study was a dual center observational study including all the LAAC procedures prospectively collected in local registries from two high-volume centres between November 2017 and December 2020. The LAA and device dimensions were measured in a centralized core lab by 3D CT scan reconstruction methods, focusing on the device landing zone (LZ/defined as the cross section of the appendage that was perpendicular to its axis and connected the circumflex artery to a point 1 to 2 cm inside the LAA).

**Results:** This analysis included n=107 patients (n=58 WMFLX, n=49 WM2.5). The patients clinical profiles didn't differ, except for a higher pro-

portion of coronary artery disease in WM2.5 group. The LAA dimensions were comparable between groups. There was a significantly higher proportion of chickenwing shapes in the WMFLX patients. The mean device baseline diameter was in the WMFLX compared to the WM2.5 patients (28.8±0.5 vs. 25.7±0.4 mm, p<0.001).

The median delay for CT control was 48 (43–62) days. The LZ area (451 (363–521) vs. 366 (260–459) mm<sup>2</sup>, p<0.001) and minimal diameter (23.0 (20.7–24.8) vs. 18.7 (15.9–21.8) mm, p<0.001) significantly increased after implantation among patients. The LZ area increase absolute value and percentage were 101 (18–151) mm<sup>2</sup> and 28 (4–54) % respectively. The LZ dimensions increase was more pronounced in the WMFLX group: these patients exhibited post LAAC larger LZ area and dimensions compared to the WM2.5 cases. The LAA eccentricity was reduced after implantation: the ratio LZ maximal/LZ minimal diameter significantly decreased for all patients (r=1.28 (1.18–1.40) vs. 1.06 (1.05–1.09), p<0.001). Comparable results were observed in WMFLX and WM2.5 patients.

A multivariable regression analysis demonstrated that baseline LAA length, baseline LZ eccentricity and WM FLX use were independent predictors of LAA remodeling/dimensions increase.

**Conclusion:** LAA dimensions increased over time at the site of WM prosthesis implantation suggesting a local positive appendage remodeling after procedure. This phenomenon appears to be more pronounced with the WMFLX device.