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LB-010 SAFETY AND EFFECTIVENESS ASSESSMENT OF THE SURPASS EVOLVE (SEASE): A REAL-WORLD INTERNATIONAL MULTICENTER STUDY

[1]J Vivanco-Suarez*, [2]J Fifi, [3]D Lopes, [1]A Rodriguez-Calienes, [2]A Devarajan, [4]G Toth, [4]T Patterson, [5]D Altschul, [6]G Cortez, [6]R Hanel, [7]E Liu, [7]V Pereira, [8]A Kühn, [8]A Puri, [9]W Guerrero, [10]I Bach, [10]P Khandelwal, [11]S Satti, [12]G Edhayan, [12]P Kan, [13]M Martinez-Galdamez, [14]C Given, [15]B Gross, [1]Y Lu, [1]M Galecio-Castillo, [1]C Alva, [1]M Farooqui, [16]S Drakhshani, [1]S Ortega-Gutierrez. *[1]Neurology, Neurosurgery and Radiology, The University of Iowa Hospitals and Clinics, Iowa City, IA; [2]Neurosurgery, The Mount Sinai Hospital, New York, NY; [3]Neurosurgery, Advocate Aurora Health, Park Ridge, IL; [4]Cerebrovascular Center, Cleveland Clinic, Cleveland, OH; [5]Neurosurgery, Montefiore Medical Center, Bronx, NY; [6]Lyerly Neurosurgery, Baptist Neurological Institute, Jacksonville, FL; [7]Neurosurgery, St Michael's Hospital, Toronto, ON, CANADA; [8]Radiology, University of Massachusetts Chan Medical School, Worcester, MA; [9]Neurology and Brain Repair, University of South Florida, Tampa, FL; [10]Neurological Surgery, New Jersey Medical School, Rutgers, Newark, NJ; [11]Neurointerventional Surgery, Christiana Care Medical Center, Newark, DE; [12]Neurosurgery, The University of Texas Medical Branch, Galveston, TX; [13]Neuroradiology/Endovascular Neurosurgery, Hospital Clínico Universitario de Valladolid, Valladolid, SPAIN; [14]Radiology, Baptist Health Lexington, Lexington, KY; [15]Neurosurgery, University of Pittsburgh Medical Center, Pittsburgh, PA; [16]Diagnostic and Therapeutic Neuroradiology, Queen's University Hospital, Romford, UK*

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Introduction/Purpose Flow diverters (FDs) are a well-established first-line treatment for specific intracranial aneurysms. The Surpass Evolve (SE) was introduced in 2019, and it is constructed with 48-64 wires (depending on the diameter) which enables navigation through an 0.027' microcatheter. It has a high braid angle (rhomboid cell shape) that can be deployed through a significantly lower-profile delivery system. It maintains a high mesh density and uniform rhomboid cell shape regardless of its post-deployment state. Previously published studies on the SE are limited (case reports and series). Here we report the first international multi-center study evaluating the safety and effectiveness of the SE.

Materials and Methods We performed an international, multicenter, cross-sectional, single-arm cohort study at 16 large-volume centers. All patients treated with the SE for intracranial aneurysms between 2020-2021 were included. Demographic, clinical, angiographic, and follow-up data were collected. Primary effectiveness outcome was complete occlusion (Raymond-Roy Class 1) at 1-year follow-up. Safety outcomes included the incidence of ischemic/hemorrhagic at 30 days and mortality. All radiographical outcomes were evaluated by independent core lab adjudication.

Results 299 patients with 333 aneurysms underwent treatment with SE. Median age was 59 [50-67] years, and 252 (84%) were female. Most patients were white (187, 62%). Hypertension was the most common comorbidity in 150 (50%), and 115 (39%) patients were smokers. The baseline modified Rankin scale (mRS) was 0-2 in 290 (93%) of the cases, and the majority were unruptured (279, 93%) and saccular (269, 90%). Previous treatment was present in 76 (25%) patients, primarily with coils (54, 18%). Median aneurysm size was 5.5 [3.5-9] mm, and median neck width was 3.4 [2.6-4.8] mm. Most aneurysms were located in the paraophthalmic segment of the internal carotid artery (127, 43%), followed by the supraclinoid (93; 31%), and petrocavernous segments (39, 13%). Mean number of SEs implanted per patient was 1.00 (range 1-3). Radial access was used in 59 (20%) cases. Adjunctive coils in 29 (10%) and balloon-assisted angioplasty in 118 (40%) cases. At 10.8 [6.5-14.1] months median follow-up, 183/259 (71%) cases achieved complete aneurysm occlusion. Ischemic events were reported in 7 (3%) cases, hemorrhagic events in 1 (0.4%), and 4 (1%) deaths.

Conclusion SEASE is the largest international multicenter study reporting outcomes after the implantation of the SE. Our results demonstrate that a 64-wire FD such as the SE has reliable effectiveness and carries a low rate of safety events in the treatment of mainly medium-sized aneurysms.

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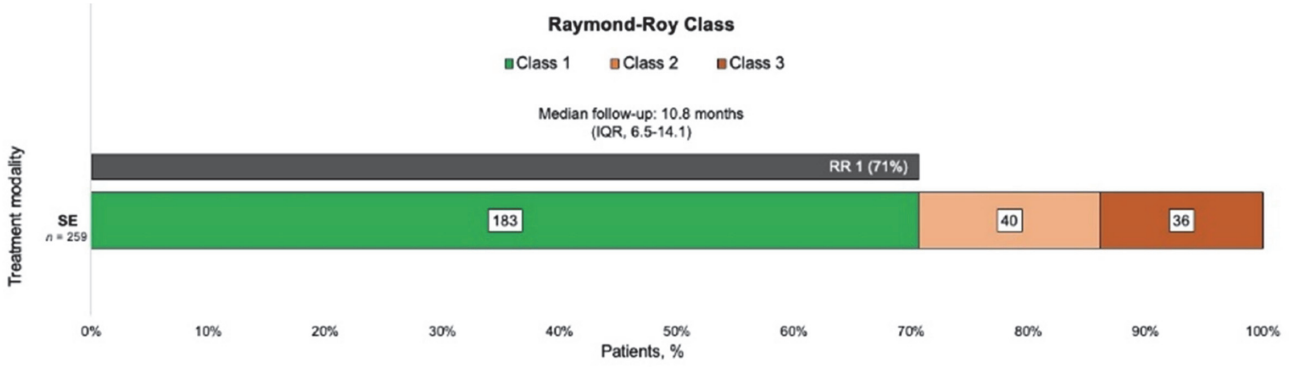

Abstract LB-010 Figure 1