ANATOMIC SUITABILITY FOR PRESENT AND NEXT GENERATION TRANSCATHETER AORTIC VALVE DEVICES

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Background: The devices currently in mainstream use for transcatheter treatment of severe aortic stenosis are those of Edwards and Medtronic-Corevalve (M-C). The range of patients that these can presently treat and the necessary evolution of these technologies, to increase their scope of therapy, have been incompletely elucidated. In two centers with two devices available, we sought to assess the proportion of patients anatomically suitable for this treatment modality by multiple access approaches.

Methods: A consecutive series of patients were assessed with transthoracic echocardiography and invasive angiography to assess anatomical suitability by different approaches. The transfemoral access requirements for Edwards and M-C (Edwards currently 22F and 24F, soon to be 18F and 19F; M-C 18F) as well as those for aortic annular dimensions (18-25 mm and 20-27 mm respectively) were incorporated. Aside from the transfemoral approach, for Edwards apical access and for M-C transaxillary and direct abdominal aortic access are feasible alternatives. The proportion of patients suitable for these devices and access approaches was determined.

Results: Data were analyzed for 100 consecutive patients. Edwards suitability was 28% for current transfemoral, 78% for Edwards Novaflex transfemoral and 88% for Edwards transapical. M-C suitability was 84% for transfemoral and 89% using additional transaxillary and direct aortic approaches. Of the 12 patients unsuitable for Edwards based procedures, 8 were suitable for M-C. Of the 11 patients unsuitable for M-C based techniques, 8 were suitable for Edwards. Only 3% were anatomically unsuitable for all approaches. While for Edwards the principal current limitation is large annular dimension, for M-C small annulus dimension and large proximal ascending aortic dimension represent important limitations.

Conclusion: In the series presented 97% of patients were anatomically suitable for a complementary approach to treatment. As well as quantitative differences, qualitative merits of each respective device in particular clinical settings and the putative impact of later generation devices will be discussed.