On-X heart valves | a product group of On-X Life Technologies, Inc.™

On-X Heart Valve: Worldwide Experience

12 year, multicenter follow-up data of the On-X® valve confirms continued low complication rates benefitting On-X aortic valve patients.

The On-X Heart Valve:

FDA approved in 2001

17 years of clinical excellence

Proven exceptional patient results

Prospective Randomized On-X Anticoagulation Clinical Trial (PROACT): FDA application submitted to lower INR levels for On-X valve patients.

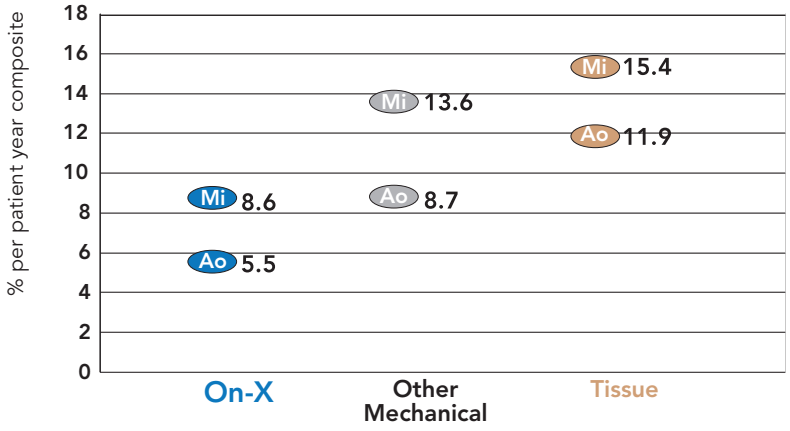
On-X® Standard Aortic Prosthetic Heart Valve

The On-X valve long-term lower complication rates

Event (%/pt.yr)	Europe: London, Athens, Barcelona[1]	S. Africa*[2]	Taiwan**[3]	Germany[4]	U.S. PMA Study[5]
Total TE	0.8	1.9	0.7	1.5	1.7
Major Bleed	0.9	1.2	1.6	1.1	0.2
Valve-related Mortality	0.5	1.3	0.7	1.9	0.2
TOTAL	2.2	4.4	3.0	4.5	2.6

* Poorly anticoagulated. 40% non-compliant[2] **Uses lower anticoagulation.[3]

Comparing FDA audited and reported composite clinical rates: On-X, other mechanical and tissue valves[5-13]



Includes TE, hemorrhage, reoperation, and death (both valve-related and total) rates.

Ao - Aortic
Mi - Mitral

1. Chambers JB, Pomar JL, Mestres CA, Palatianos GM. Clinical event rates with the On-X bileaflet mechanical heart valve: A multicenter experience with follow-up to 12 years. J Thorac Cardiovasc Surg 2012. (doi: 10.101b/j.jtcvs.2011.12.059)
2. Williams MA, Van Reit S. The On-X Heart Valve at 10 Years. Presented at the 6th Biennial Meeting of the Society for Heart Valve Disease. June 5-28, 2011 in Barcelona, Spain.
3. Tsai HW, Hsieh SR, Wei HJ, et al. Seven-year experience with On-X Prosthetic Heart Valves in an Asian population with high risk cardiac status and reduced anti-coagulation, Society for Heart Valve Disease 4th Biennial Meeting, New York, June 15-18, 2007. Poster 146 [Poster]
4. Tossios P, Reber D, Oustria M, et al. Single-center experience with the On-X prosthetic heart valve between 1996 and 2005. J Heart Valve Dis 2007; 16:551-57
5. On-X Prosthetic Heart Valve, Summary of Safety and Effectiveness Data submitted to the United States Food and Drug Administration. PMA P000037. Approval date May 30, 2001 and March 6, 2002
6. SJM Regent® Valve. Clinical Study Summary (package insert)
7. CarboMedics® Prosthetic Heart Valve. Summary of Safety and Effectiveness Data submitted to the United States Food and Drug Administration. PMA P900060. Approval date April 13, 1993
8. ATS Open Pivot® Bileaflet Heart Valve. Summary of Safety and Effectiveness Data submitted to the United States Food and Drug Administration. PMA P990046. Approval date October 13, 2000
9. Edwards Life Sciences Carpentier-Edwards Perimount Magna Pericardial Bioprosthesis. Instructions for Use. Copyright 2003
10. Mitroflow Aortic Pericardial Heart Valve. Summary of Safety and Effectiveness Data submitted to the United States Food and Drug Administration. PMA P060038. Approval date October 23, 2007
11. SJM Biocor® Valve and SJM Biocor® Supra Valve. Summary of Safety and Effectiveness Data submitted to the United States Food and Drug Administration. PMA P040021. Approval date August 5, 2005
12. Medtronic Freestyle® Aortic Root Prosthesis. Summary of Safety and Effectiveness Data submitted to the United States Food and Drug Administration. PMA P970031 Approval date November 26, 1997
13. Mosaic Heart Valve. Summary of Safety and Effectiveness Data submitted to the United States Food and Drug Administration. PMA P990064. Approval date July 14, 2000.

On-X Valve Lowered Anticoagulation Trial

October 2012: On-X Life Technologies, Inc.™ submitted applications to the U.S. FDA and to the Conformité Européenne (CE) for revised Instructions for Use (IFU) recommending lower INR levels (1.5 – 2.0) for patients with On-X aortic valves. The applications were submitted based upon the results of the PROACT high-risk aortic valve patient group.

PROACT Test Groups[1-3]

Pre-randomization

Transition Period
First three postoperative months with standard anticoagulation therapy[3]

AVR = aortic valve replacement
MVR = mitral valve replacement

Post-randomization

Low Risk AVR
After loading dose, Clopidogrel 75 mg/day, Aspirin 325 mg/day

High Risk AVR
INR 1.5 to 2.0, Aspirin 81 mg/day

All MVR
INR 2.0 to 2.5, Aspirin 81 mg/day

Control Groups
Each of the three post-randomization groups will be given standard anticoagulation therapy[3]

PROACT Patient Group Criteria

PROACT Trial High Risk AVR Criteria

- Chronic atrial fibrillation
- Left ventricular ejection fraction < 30%
- Enlarged left atrium > 50mm diameter
- Spontaneous echo contrasts in the left atrium
- Neurological events (any history prior stroke or TIA)
- Left or right ventricular aneurysm
- Women receiving estrogen replacement therapy
- Hypercoagulability

PROACT Trial Low Risk AVR Criteria
Patients are considered low risk only if they have no high risk factors.

PROACT Trial Exclusion Criteria

- Multiple valve replacement (MV repair is acceptable)
- Active endocarditis
- Terminal illness
- Emergency cases
- Inability to return for follow-up
- Persons unable to give adequate consent

On-X Valve Lowered Anticoagulation Trial

2001
On-X Valve FDA approved

2006
Exceptional worldwide On-X valve clinical data results inspired PROACT Trial

2006
PROACT Trial initiated

2011
Positive preliminary results presented at American College of Cardiology (ACC) Annual Meeting[4]

2012
Submission to FDA for IFU changes for high-risk aortic group

2013
Projected submission to FDA for IFU changes for low-risk group

2014
Projected submission to FDA for IFU changes for mitral group

1. FDA Approved Non-Warfarin and Reduced Warfarin Anticoagulation Trial of the On-X Prosthetic Heart Valve Initiated at Emory Crawford Long Hospital -Tuesday, August 22, 2006. News release Medical Carbon Research Institute, LLC, Austin, Texas USA; © 2006 http://www.onxvalves.com/about_news_item.asp?NewsID=31
2. PROACT Investigation Plan. Medical Carbon Research Institute, LLC, Austin,Texas USA; © 2006
3. ACC/ AHA 2006 Guidelines for the Management of Patients With Valvular Heart Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the1998 Guidelines for the Management of Patients With Valvular Heart Disease): Developed in Collaboration With the Society of Cardiovascular Anesthesiologists Endorsed by the Society for Cardiovascular Angiography and Interventions and the Society of Thoracic Surgeons Circulation 2006;114;84-231. DOI: 10.1161/CIRCULATIONAHA.106.176857.
4. Puskas JD, Quinn R, Fermin L, McGrath M, Gerdisch M, Hughes C, Martin T, Kong B, Nichols D. Reduced anticoagulation for a mechanical heart valve. Presented at the American College of Cardiology 2011, New Orleans, Louisiana, USA, April 4, 2011 in Late-Breaking Clinical Trials

On-X aortic and mitral valves are FDA approved.

Until the PROACT Trial is complete, On-X Life Technologies recommends all patients should be retained on existing ACC/AHA guidelines for mechanical valve anticoagulation. CAUTION: Federal law restricts this device to sale by or on the order of a physician. Refer to the Instructions for Use that accompany each valve for indications, contraindications, warnings, precautions and possible complications. CAUTION: This investigational use of this device is limited by Federal law to investigational sites. For further information, visit www.onxlti.com.

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