Clinical summary

Transcatheter valve replacement with the EVOQUE system in patients with symptomatic ≥ severe tricuspid regurgitation

THE TRISCEND II PIVOTAL TRIAL

Objectives

The TRISCEND II trial is a prospective, multi-center, randomized pivotal trial evaluating the safety and effectiveness of transcatheter tricuspid valve replacement using the Edwards EVOQUE system with optimal medical therapy compared to optimal medical therapy alone in patients with symptomatic ≥ severe tricupsid regurgitation (TR).

Methods

Patients with
- TR graded as ≥ severe
- Symptomatic despite optimal medical therapy

2:1 Randomized
N=400

EVOQUE TTVR
n=267

Medical therapy alone
n=133

- 45 enrolling sites in the United States and Germany
- Primary safety and effectiveness endpoint was a hierarchical composite assessed at 1 year:
  - All-cause mortality,
  - RVAD implantation or heart transplant,
  - Tricuspid valve surgery or percutaneous tricuspid intervention,
  - Annualized rate of HF hospitalizations,
  - KCCQ-OS improvement Δ ≥10 points,
  - NYHA improvement Δ ≥1 functional class, and
  - 6MWD improvement Δ ≥30 meters

Key Outcomes

- The primary endpoint was met, demonstrating **EVOQUE TTVR was superior to medical therapy alone** with a win ratio of 2.02 (95% CI, 1.56 to 2.62; p<0.001).
- **95.3% achieved TR reduction to ≤mild** with EVOQUE TTVR compared to 2.3% with medical therapy alone at 1 year.
- There were **favorable numerical trends for EVOQUE TTVR** compared to medical therapy alone **in all-cause mortality** (12.6% vs. 15.2%)* **and heart failure hospitalizations** (20.9% vs 26.1%)† at 1 year.
- Patients treated with **EVOQUE TTVR had greater improvements in health status**, including 18.4-point increase in KCCQ-OS, 91.0% in NYHA class I/II, and 23.2m increase in 6MWD at 1 year.

* *12.6±2.1% for EVOQUE TTVR vs 15.2±3.3% for medical therapy alone.*
† *20.9±2.6% for EVOQUE TTVR vs 26.1±4.1% for medical therapy alone.*

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Results

Baseline Characteristics	EVOQUE TTVR n=259*	Medical therapy alone n=133
Age, years	79.3	79.1
Female	74.9%	76.7%
NYHA class III-IV	73.0%	69.2%
Atrial fibrillation	96.1%	92.5%
Chronic kidney disease	54.1%	59.4%
Pacemaker/ICD	38.2%	39.8%
Ascites	18.5%	21.8%
KCCQ-OS (mean)	52.8	50.6
Secondary TR etiology	74.1%	71.4%

Procedural Outcomes

- 100% performed via percutaneous femoral vein access
- No procedural deaths and 1.2% conversion to surgery
- 93% discharged home

Procedural Characteristics	n=259*
Device implanted as intended	95.4%†
Device time, median (IQR), min	56.5 (41.0, 75.0)
Length of stay, median (IQR), days	3.0 (2.0, 6.0)

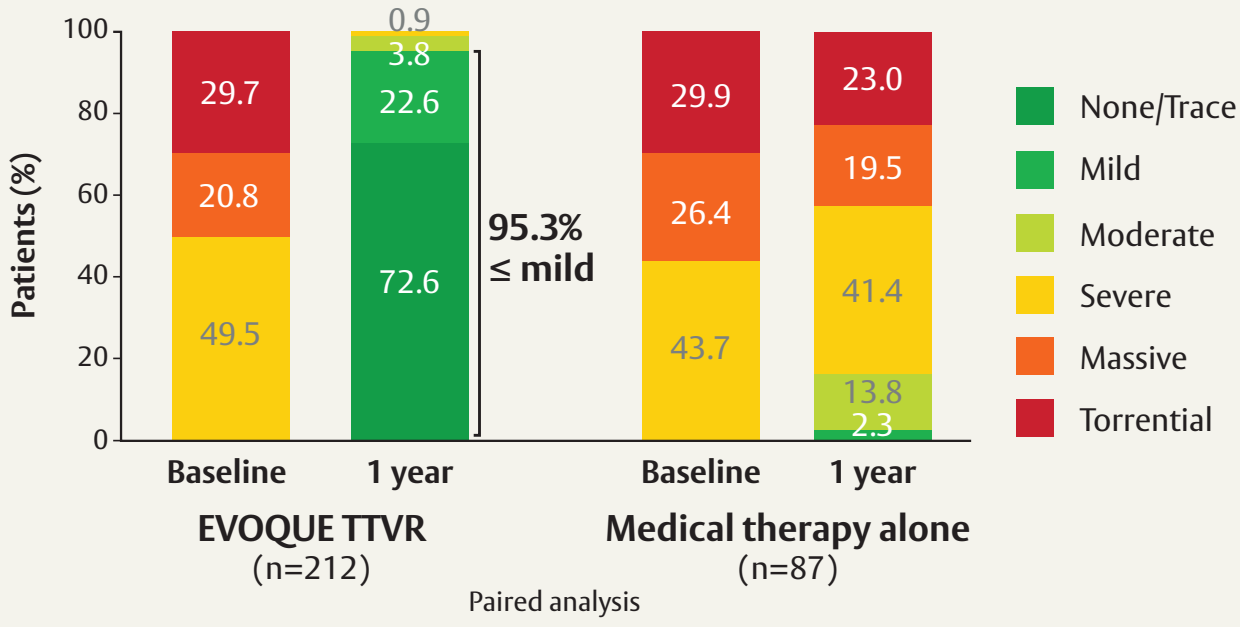
* *Of the 267 patients randomized to EVOQUE TTVR, 8 exited prior to procedure*

† *12 patients (4.6%) did not receive device due to challenging imaging or anatomy*

Echocardiographic Outcomes

- EVOQUE TTVR achieved 95.3% ≤mild TR compared to 2.3% in medical therapy alone. TR was eliminated in 72.6% of patients who received EVOQUE TTVR.

Figure 1. TR Reduction at 1 year



Results (continued)

Figure 2. KCCQ-OS Improvement

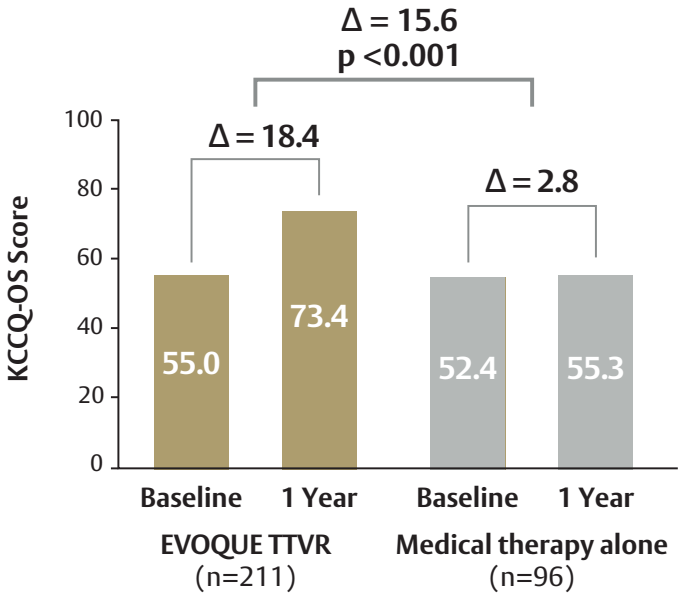


Figure 4. 6MWD Improvement

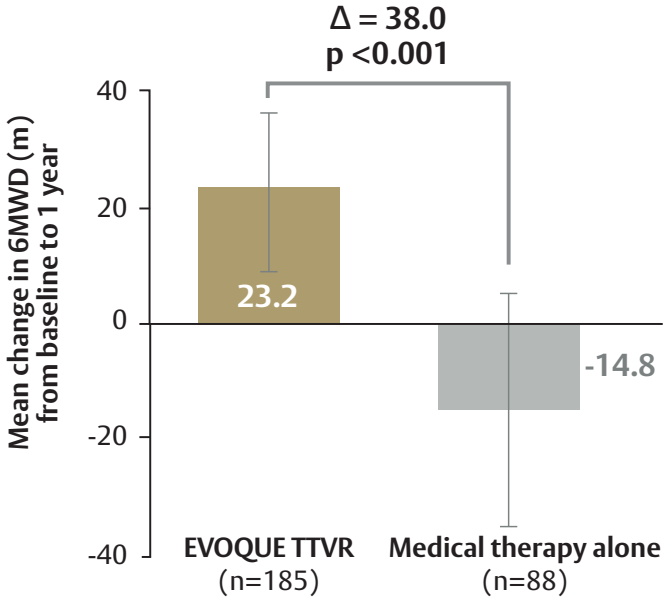
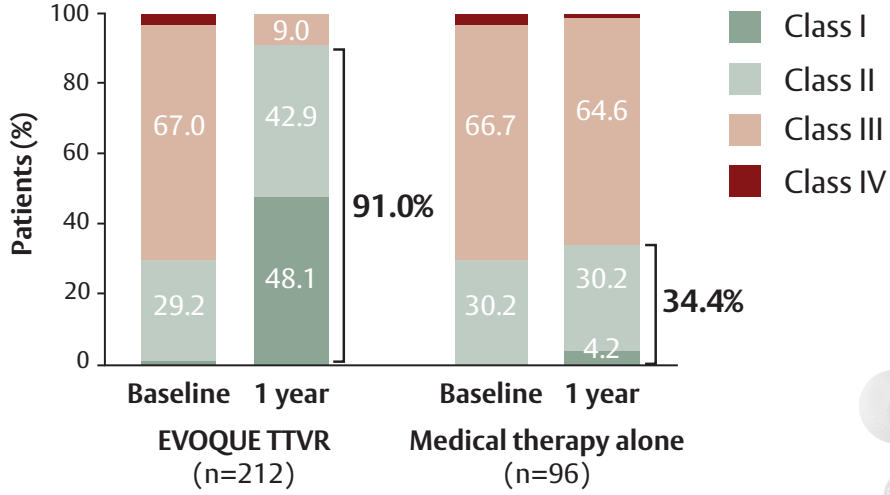
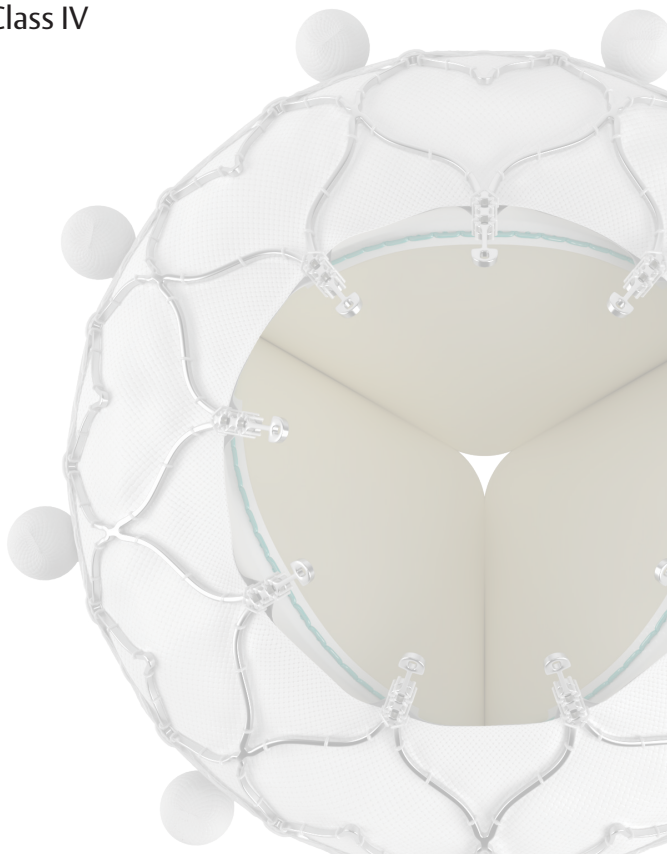


Figure 3. NYHA Functional Class Improvement





Results (continued)

Primary Endpoint

- Based on 34447 possible pairs, there were 21397 wins for EVOQUE TTVR, 10591 wins for medical therapy alone, and 2459 ties, resulting in a win ratio of 2.02 (95% CI, 1.56 to 2.62; p<0.001). The primary safety and effectiveness endpoint was met, demonstrating EVOQUE TTVR was superior to medical therapy alone.

Figure 5. Primary Safety and Effectiveness Composite Endpoint Win Ratio Analysis

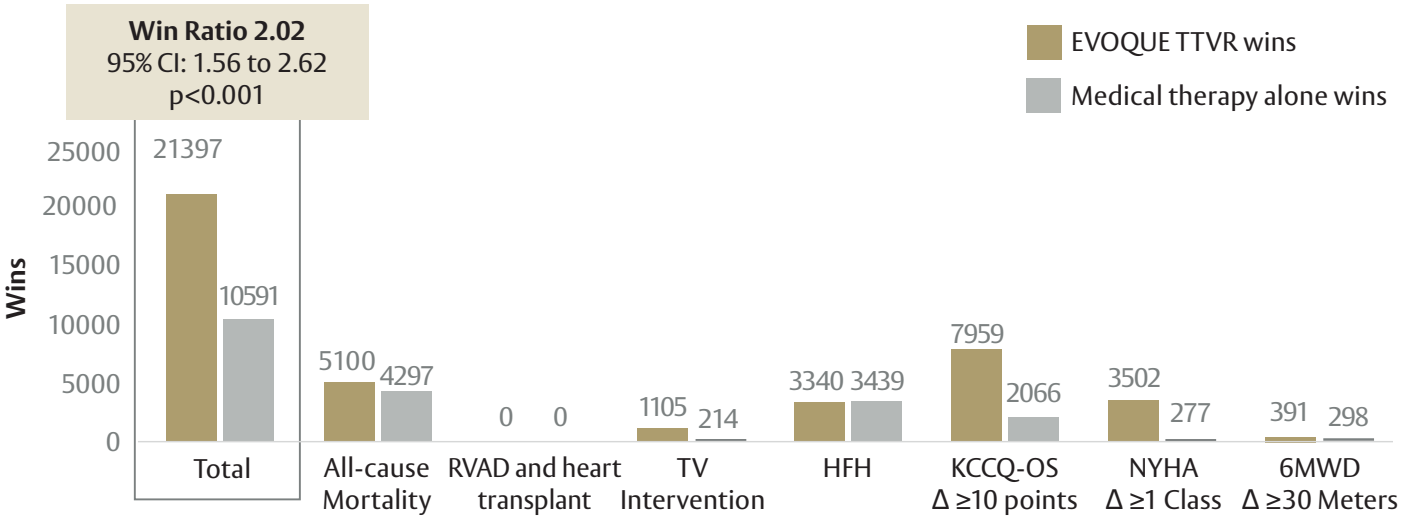
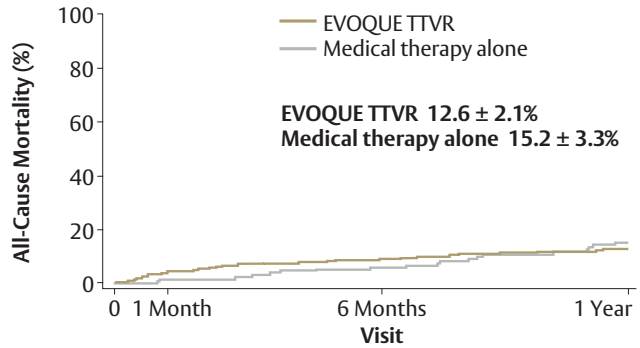
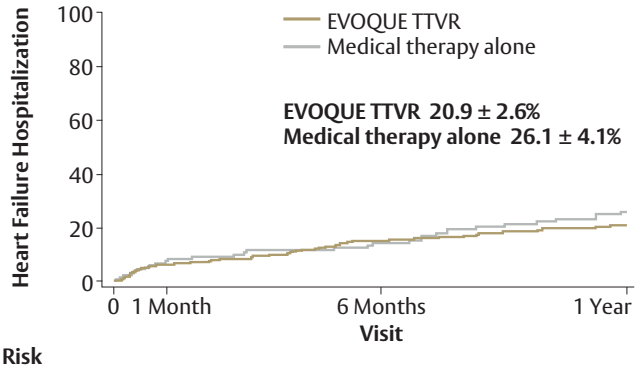


Figure 6. Kaplan-Meier All-cause Mortality



No. At Risk				
EVOQUE TTVR	259	245	231	216
Medical therapy alone	133	123	112	96

Figure 7. Kaplan-Meier HF Hospitalization



No. At Risk				
EVOQUE TTVR	299	229	198	176
Medical therapy alone	133	116	100	79

Results (continued)

30-day Safety Outcomes

CEC-Adjudicated Safety Events	EVOQUE TTVR n=259
Cardiovascular mortality	3.1%
Myocardial infarction	0.8%
Stroke	0.4%
Severe bleeding*	10.4%
Non-elective tricuspid re-intervention	0.8%
New pacemaker/CIED implants in pacemaker-naïve patients	24.7%

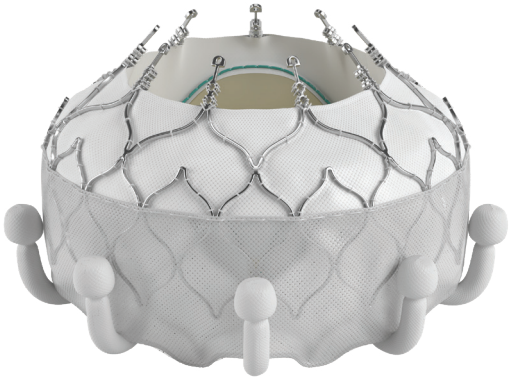
** Fatal, life-threatening, extensive, or major bleeding, as defined by Mitral Valve Academic Research Consortium (MVARC; Stone et al. 2015).*

Conclusion

- Patients with severe TR experience significant symptom burden with diminished quality of life.
- TRISCEND II is the first randomized controlled trial studying tricuspid valve replacement compared to medical therapy alone.
- Results from the TRISCEND II trial establish TTVR as an effective therapy with a proven safety profile for patients with symptomatic ≥ severe TR, with consistent TR resolution accompanied by meaningful health status benefits.

Abbreviations (alphabetical)

6MWD = *Six-minute walk distance*
CEC = *Clinical events committee*
CI = *Confidence interval*
CIED = *Cardiac implantable electronic device*
HF = *Heart failure*
ICD = *Implantable cardioverter defibrillator*
IQR = *Interquartile range*
IVC = *Inferior vena cava*
KCCQ-OS = *Kansas City Cardiomyopathy Questionnaire – Overall Summary*
LVOT = *Left ventricular outflow tract*
MVARC = *Mitral Valve Academic Research Consortium*
NYHA = *New York Heart Association*
RVAD = *Right ventricular assist device*
RVEDD = *Right ventricular end-diastolic diameter*
SV = *Stroke volume*
TR = *Tricuspid regurgitation*
TTVR = *Transcatheter tricuspid valve replacement*



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Medical device for professional use. For a listing of indications, contraindications, precautions, warnings, and potential adverse events, please refer to the Instructions for Use (consult eifu.edwards.com where applicable).

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