EuroPCR 2025

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Congress Review

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THE ANNUAL world-leading course in interventional cardiology, the European Association of Percutaneous Cardiovascular Interventions (EuroPCR), brought over 12,000 participants to Paris, France, for a dazzling 4-day event.

EuroPCR is world-renowned for bringing together interventional cardiologists, cardiac surgeons, imaging specialists, radiologists, nurses, allied professionals, researchers, innovators, and industry representatives. Together, they share their knowledge, skills, and experience regarding interventions for coronary and peripheral vessels, valvular disease, heart failure, hypertension, and stroke.

With over 800 hours of content scheduled in the programme, attendees were spoilt for choice when exploring the sessions on offer. This year, the quality of scientific content presented was higher than ever, with over 3,100 submissions received. Of these, three major, late-breaking trials were selected for their notable contributions to the field: 'Meta-Analysis of individual patient data from the PROTECTED TAVR and BHF PROTECT-TAVI studies', 'Angiography versus physiology-guided PCI in patients undergoing TAVI: the functional assessment in TAVI (FAITAVI) trial', and 'One-month DAPT followed by dose reduction of prasugrel after drug-coated stent insertion in Acute Coronary Syndrome'.

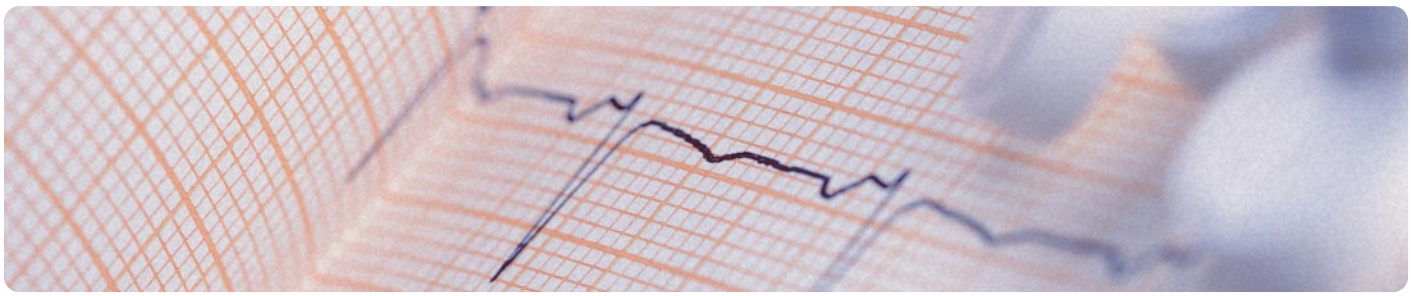
Behind the tailored course are the six EuroPCR Course Directors: Thomas Cuisset, Nicolas Dumonteil, PCR Co-Chairman Jean Fajadet, Nieves Gonzalo, PCR Co-Chairman Bernard Prendergast, and PCR Chairman William Wijns. During the Welcome session, the course directors introduced the overarching theme of the event: complexity. They explained that there are three levels of complexity in interventional cardiology. Firstly, the complexity of the lesions themselves; secondly, increased patient complexity due to the presence of comorbidities and other factors; and thirdly, complexity linked to issues within the healthcare system. It was emphasised that the aim of EuroPCR 2025 was to share solutions for complexity and improve patient outcomes.

Fajadet took a moment during the Welcome Ceremony to pay tribute to Jean Marco, founder of the first annual meeting in 1989, originally called the "Course on Complex Coronary Angioplasty and New Techniques in Interventional Cardiology." He highlighted that it is thanks to Jean Marco's pioneering ideas, vision, and tremendous work in the field that the event

is possible and 12,000 participants have the opportunity to attend. With a personal touch, he thanked Marco for sharing his remarkable career so closely with him.

The course directors also expressed their gratitude for the many people involved in making the event possible: the 33 track coordinators, 85 programme producers, 410 graders, 1,000 faculty, 1,500 presenters, and over 700 evaluators. The collective effort ensured that everyone at the four-day event was able to successfully share their knowledge.

Read on for key insights into this year's congress, and don't miss our coverage of EuroPCR 2026, which will be held again in Paris, France, from the 19th–22nd May.



Reducing Bleeding with Shorter Dual Antiplatelet Therapy and Reduced-Dose Prasugrel

ONE-MONTH dual antiplatelet therapy (DAPT), followed by reduced-dose prasugrel monotherapy, significantly reduced bleeding events without increasing ischaemic risk in patients with acute coronary syndrome (ACS) undergoing percutaneous coronary intervention (PCI), according to a major late-breaking trial presented for the first time during EuroPCR 2025.[1]

DAPT has long been the cornerstone of secondary prevention following PCI in patients with ACS, aiming to minimise the risk of stent thrombosis and other ischaemic complications. However, prolonged DAPT is associated with an increased risk of bleeding, which can adversely affect long-term outcomes. Recent research has focused on optimising the balance between ischaemic protection and bleeding risk, particularly by tailoring DAPT duration and intensity to individual patient profiles. The 4D-ACS randomised trial was designed to assess whether a de-escalation strategy of 1 month of DAPT with aspirin and prasugrel, followed by prasugrel 5 mg monotherapy, could maintain ischaemic protection while reducing bleeding events, compared to the conventional 12-month DAPT protocol.

In this multicentre, double-blind study, 656 patients were randomised immediately after PCI with a biolimus-coated drug-eluting stent to either the 1M-DAPT group (one month of DAPT then prasugrel 5 mg monotherapy) or the 12M-DAPT group (12 months of DAPT with aspirin and prasugrel 5 mg). The primary endpoint was net adverse clinical events at 12 months, defined as a composite of death, non-fatal myocardial infarction, stroke, ischaemia-driven target vessel revascularisation, and Bleeding Academic Research Consortium (BARC) Type 2–5 bleeding.

At 12 months, net adverse clinical events occurred in 4.9% of the 1M-DAPT group versus 8.8% in the 12M-DAPT group, meeting criteria for both non-inferiority (p=0.014) and superiority (p=0.034). Major bleeding was significantly reduced in the 1M-DAPT group (0.6% versus 4.6%; hazard ratio: 0.13; p=0.007), while ischaemic outcomes were similar between groups, indicating that the reduction in adverse events was primarily driven by decreased bleeding.

> **The reduction in adverse events was primarily driven by decreased bleeding**

The findings of the 4D-ACS trial support a shift towards more individualised antiplatelet strategies in patients with ACS post-PCI, especially for those with an increased bleeding risk. However, further studies in more diverse populations and with different stent platforms are warranted. For clinical practice, this approach provides a viable alternative to prolonged DAPT, supporting a transition towards risk-adapted, patient-centred care in ACS management.

Physiology-Guided PCI Reduces Risks in Patients Undergoing TAVI

A NEW trial presented at EuroPCR 2025 shows that physiology-guided coronary intervention significantly lowers complication rates in patients undergoing transcatheter aortic valve implantation (TAVI) with coexisting intermediate coronary artery disease.[2]

Managing patients with both severe aortic stenosis and intermediate coronary artery disease remains a clinical dilemma, especially as over half of TAVI candidates present with coronary lesions. The FAITAVI trial was the first randomised study comparing fractional flow reserve (FFR)-guided percutaneous coronary intervention (PCI) with angiography-guided PCI in this population.

A total of 320 stable patients undergoing TAVI were randomised 1:1 to receive either FFR- or angiography-guided revascularisation. In the angiography arm, all lesions with ≥50% stenosis in vessels >2.5 mm were treated. In the physiology-guided arm, only lesions with FFR ≤0.80 were treated, while those with FFR >0.85 were deferred. For borderline FFR values (0.81–0.85), remeasurement post-TAVI was advised, as coronary flow may improve after valve replacement.

At 12-month follow-up, major adverse cardiac and cerebrovascular events occurred in 8.5% of patients in the FFR-guided group versus 16.0% in the angiography-guided group. The benefit was mainly driven by reductions in all-cause mortality and ischaemia-driven target vessel revascularisation. Median SYNTAX scores were low, at 7, and patient age averaged 86 years in both groups, suggesting that the cohort represented a lower-complexity, elderly population. Notably, the trial excluded severe lesions (diameter stenosis >90%) and focused on intermediate stenoses, setting it apart from prior studies like NOTION-3, which included a broader range of coronary diseases and compared PCI with conservative therapies rather than guidance strategies.

These results support the clinical value of functional lesion assessment in guiding revascularisation strategy for TAVI candidates with stable coronary disease. With evidence that physiology-guided PCI reduces adverse outcomes, clinicians may consider FFR assessment as a valuable decision-making tool when managing this growing patient group.

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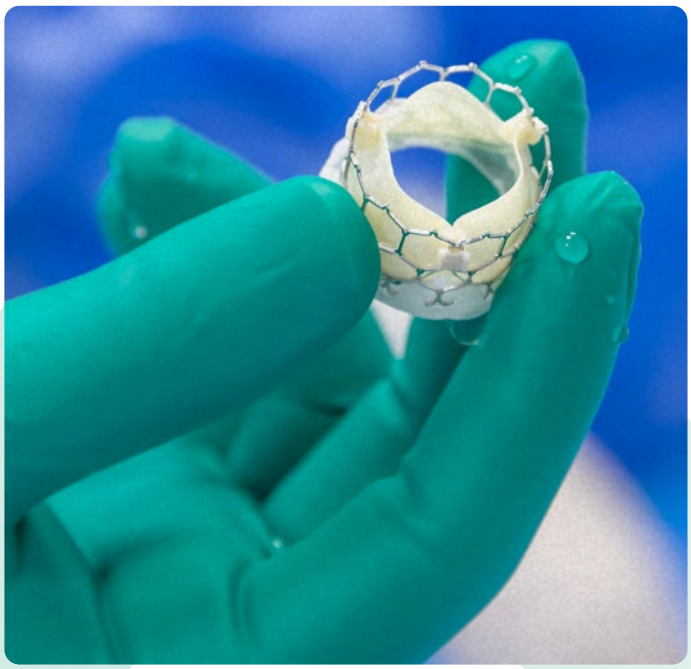

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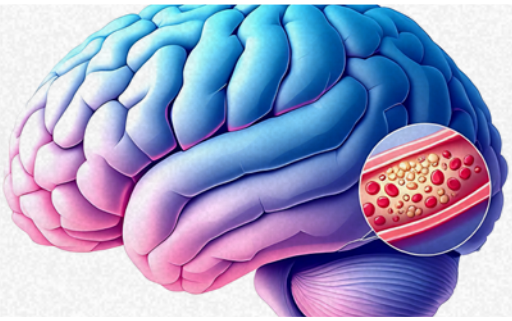

Meta-Analysis Confirms No Routine Benefit of CEP During TAVI Procedures

STROKE remains a serious complication following transcatheter aortic valve implantation (TAVI), prompting the use of cerebral embolic protection (CEP) devices to capture dislodged debris during the procedure. Although several clinical trials have evaluated the efficacy of CEP devices in reducing periprocedural stroke risk, results have been inconclusive.

A new meta-analysis, presented for the first time during EuroPCR 2025, now provides the most comprehensive assessment to date by combining individual patient data from the two largest randomised trials in the field. Crucially, the findings show no reduction in stroke incidence with the routine use of CEP during TAVI.[3]

The study incorporated data from the PROTECTED TAVR (3,000 patients) and BHF PROTECT-TAVI (7,635 patients) trials, totalling 10,635 participants, which is the largest dataset yet studied in this context. The meta-analysis focused on the modified intention-to-treat population, including all patients whose TAVI procedures were initiated. Of these, 5,287 underwent TAVI with CEP using the SENTINEL™ device (Boston Scientific, Marlborough, Massachusetts, USA), and 5,293 underwent TAVI without CEP. Both patient groups were closely matched in age (mean: 80.6 years), gender distribution (less than 40% women), surgical risk score, Society of Thoracic Surgeons (STS) risk score, European System for Cardiac Operative Risk Evaluation (EuroSCORE II), and medical history, ensuring robust comparability.

The primary endpoint was stroke incidence within 72 hours of the procedure or by the time of hospital discharge.

Results demonstrated no statistically significant difference in stroke rates between the CEP and non-CEP arms. Secondary analysis using the Complier Average Causal Effect method, which adjusts for non-adherence in per-protocol populations, confirmed the absence of benefit.

> **Findings show no reduction in stroke incidence with the routine use of CEP during TAVI**

These findings have important implications for clinical practice. Routine use of the SENTINEL CEP device during TAVI cannot be recommended based on current evidence. While the biological rationale for embolic protection remains valid, this study highlights the need for further research to refine patient selection. Limitations of the study include device-specificity, as the findings apply solely to the SENTINEL system, and a lack of data on long-term stroke outcomes or neurocognitive impact. Future directions should focus on identifying high-risk subgroups who might benefit from targeted CEP, understanding the impact of incomplete device deployment, and developing risk prediction models to inform decision-making in TAVI candidates.

10-Year Outcomes from the DANAMI-3-DEFER Trial

LONG-TERM data from the DANAMI-3-DEFER trial, presented at EuroPCR 2025, show that, while deferred stenting in patients with ST-elevation myocardial infarction didn't significantly reduce all-cause mortality over 10 years, it was associated with a lower rate of hospitalisation for heart failure.[4]

The trial followed 1,215 patients randomised across four percutaneous coronary intervention centres in Denmark to either immediate stenting or a deferred strategy, where blood flow was first stabilised and stenting postponed. After a decade of follow-up, the composite primary outcome of hospitalisation for heart failure or all-cause mortality occurred in 24% of patients in the deferred group compared to 25% in the conventional percutaneous coronary intervention group (hazard ratio: 0.82; 95% CI: 0.67–1.02; p=0.08).

All-cause mortality alone was similar across both groups, but hospitalisation for heart failure was significantly reduced in the deferred arm (odds ratio: 0.58; 95% CI: 0.39–0.88). Rates of target vessel revascularisation remained comparable.

While the headline result might not be a game changer for overall mortality, the heart failure data hint at a potential role for deferring stent placement in carefully selected patients with ST-elevation myocardial infarction, especially when longer-term cardiac function is a concern.

> **All-cause mortality alone was similar across both groups, but hospitalisation for heart failure was significantly reduced in the deferred arm**

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Immediate Multivessel PCI Linked to Lower Mortality in Patients with STEMI Shock

THIS YEAR, Rasmus Paulin Beske, from Rigshospitalet, Copenhagen, Denmark, presented the findings of his team's research at EuroPCR.[5]

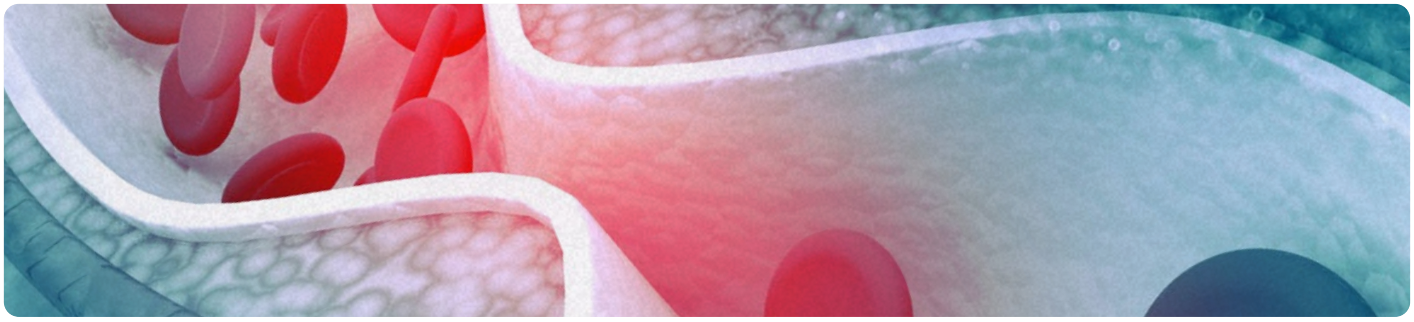
This secondary analysis of the DanGer Shock trial found that immediate multivessel percutaneous coronary intervention (PCI) may reduce mortality in non-comatose patients with ST-elevation myocardial infarction (STEMI) complicated by cardiogenic shock and multivessel coronary artery disease.

The international, multicentre trial, conducted from 2013–2023 across Denmark, Germany, and the UK, enrolled adult patients with STEMI-related cardiogenic shock. This sub-study focused on the 221 patients with multivessel disease, defined as at least one non-culprit artery with ≥70% stenosis, who were stratified by treatment strategy: immediate multivessel PCI (103 patients) or culprit-only PCI (118 patients).

After adjusting for confounders, immediate multivessel PCI was associated with significantly lower all-cause mortality at 180 days (adjusted odds ratio: 0.40; 95% CI: 0.19–0.83). Importantly, this comprehensive approach was not linked to an increased risk of secondary complications such as acute kidney injury, bleeding, or stroke.

The post-procedural, median pre-PCI Synergy between PCI with TAXUS and Cardiac Surgery (SYNTAX) score, which measures coronary disease complexity, was 28 in the culprit-only group and 29 in the immediate multivessel PCI group, whereas the SYNTAX score after PCI was significantly lower in the immediate vessel group (9 versus 6; p=0.011).

These findings suggest that immediate multivessel PCI may be both safe and beneficial in this high-risk population. However, the authors caution that a dedicated randomised trial is needed to confirm these results and better define the role of multivessel PCI in patients with STEMI-related cardiogenic shock and multivessel disease.



Comparative 1-Year Outcomes of Rotational Atherectomy, Lithotripsy, and Laser for Calcified Coronary Stenosis

ROTATIONAL atherectomy, intravascular lithotripsy, and excimer laser angioplasty demonstrate comparable safety and efficacy at 1 year for the treatment of *de novo* calcified coronary stenosis, according to the ROLLER COASTR-EPIC22 study presented at EuroPCR 2025.[6]

Calcified coronary lesions present a significant challenge during percutaneous coronary intervention, often complicating stent delivery and expansion, and increasing the risk of adverse outcomes. Several plaque modification techniques, including rotational atherectomy (RA), excimer laser coronary angioplasty (ELCA), and intravascular lithotripsy (IVL), have been developed to address severe calcification, but direct comparative data on their long-term clinical performance have been lacking. The ROLLER COASTR-EPIC22 trial is the first randomised study to directly compare these three modalities in patients with moderate-to-severe *de novo* calcified coronary stenosis, with a focus on 1-year clinical outcomes.

In this multicentre trial, 171 patients with angiographically moderate-to-severe calcified coronary lesions (mean age: 70.9 years; 77.2% male) were randomised equally to undergo percutaneous coronary intervention with RA, IVL, or ELCA. Acute coronary syndrome was the presenting diagnosis in 35.7% of cases, and severe angiographic calcification was confirmed in over 80% of lesions. Optical coherence tomography confirmed a mean calcium arc of 300.8 degrees, a maximum calcium thickness of 1.17 mm, and a calcification length of 30.9 mm, with nearly one-third of patients exhibiting calcium nodules. It was revealed that baseline characteristics were well balanced across groups.

At 1 year, the incidence of major adverse cardiovascular events, comprised of cardiac death, target vessel myocardial infarction, target vessel revascularisation, and stent thrombosis, was low and did not differ significantly between groups (RA: 5.3%; IVL: 5.3%; ELCA: 3.5%; p=0.88). All-cause mortality was also similar between groups (RA: 5.3%; IVL: 0%; ELCA: 5.3%; p=0.22), and there were no significant differences in the rates of target vessel myocardial infarction, target vessel revascularisation, target lesion revascularisation, or stent thrombosis between the three treatment arms.

The ROLLER COASTR-EPIC22 trial provides important evidence that all three contemporary plaque modification techniques offer similar safety and efficacy profiles at 1 year in patients with calcified coronary stenosis. For clinical practice, this suggests that the choice between these modalities can be guided by operator experience, lesion characteristics, and device availability without compromising patient outcomes.

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TRI-SCORE Overpredicts Risk Following Transcatheter Tricuspid Repair

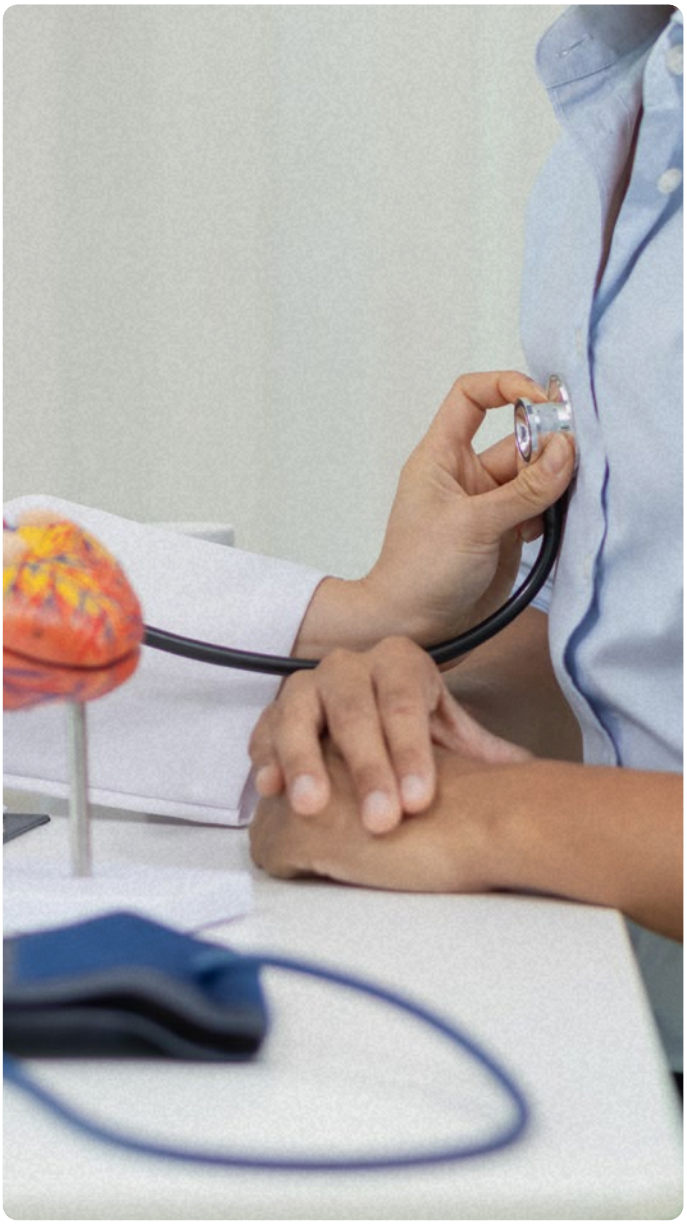
PRESENTED at EuroPCR 2025, new data from the EuroTR registry challenged the predictive accuracy of the TRI-SCORE for patients undergoing tricuspid valve transcatheter edge-to-edge repair (T-TEER). While the TRI-SCORE offered qualitative risk stratification, researchers found that it consistently overestimated both short- and long-term mortality across all risk categories.[7]

The study analysed outcomes for 1,062 patients with tricuspid regurgitation who were stratified into low (0–3), intermediate (4–5), and high (6+) TRI-SCORE groups. High scoring patients had more comorbidities, more advanced right ventricular dysfunction, and lower procedural success rates. Despite these clinical differences, 30-day mortality remained low overall: 0% in the low-risk group, 1.9% in the intermediate, and 2.9% in the high-risk patients, suggesting that the score may not reflect real-world post-T-TEER outcomes.

At 2 years, observed mortality rates were also significantly lower than predicted, with TRI-SCORE estimates of 4.6%, 13.9%, and 27.8% across increasing risk categories. Although the score maintained relative stratification accuracy, its absolute predictions did not match observed event rates.

These findings suggest that, while TRI-SCORE can help identify relative risk, its clinical utility in T-TEER populations may be limited without recalibration. The authors call for further refinement of risk prediction tools to better reflect outcomes in the evolving transcatheter landscape.

> **High scoring patients had more comorbidities, more advanced right ventricular dysfunction, and lower procedural success rates**



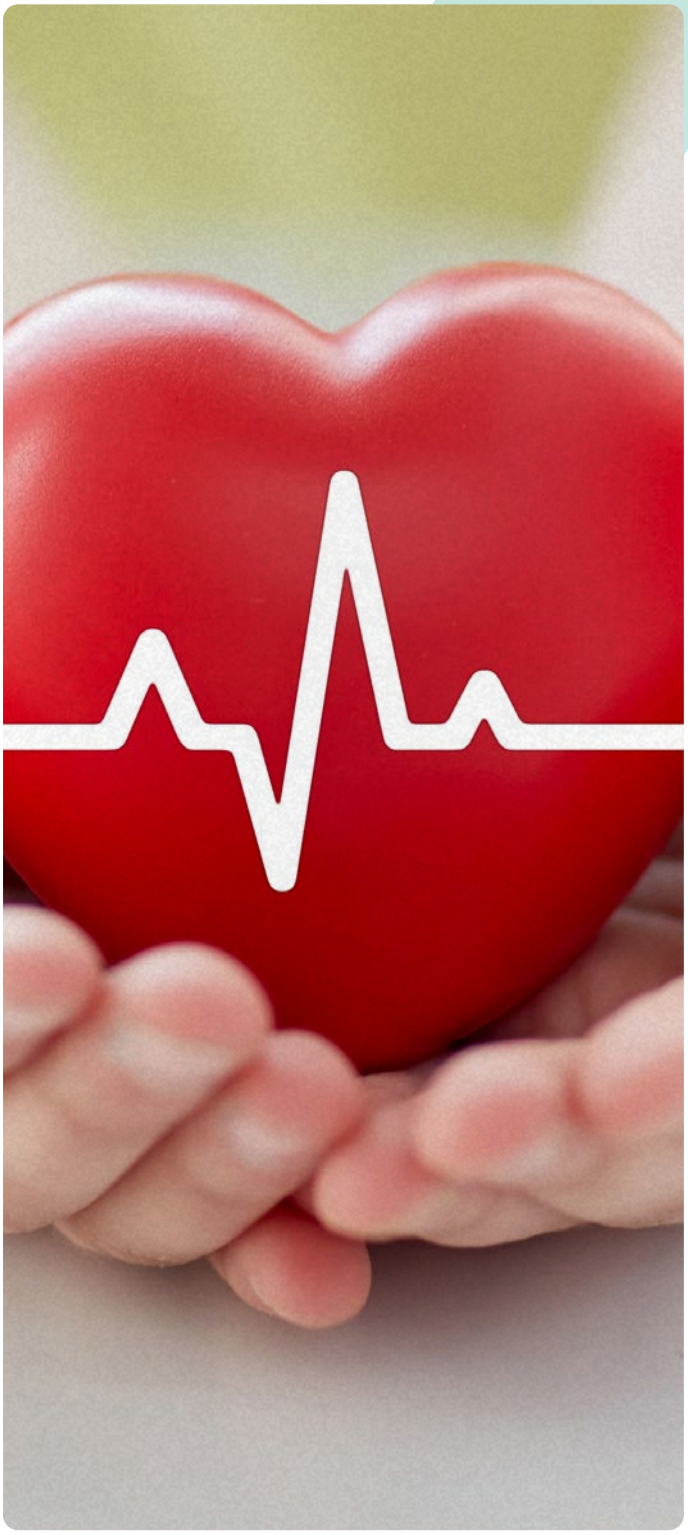
30-day mortality remained low overall:

0%	**in the low-risk group**
1.9%	**in the intermediate group**
2.9%	**in the high-risk patients**

Transcatheter Repair Benefits Elderly with Atrial Mitral Regurgitation

A RECENT study, presented at the EuroPCR 2025 annual meeting, reveals that transcatheter edge-to-edge repair (TEER) significantly improves outcomes in elderly patients suffering from atrial functional mitral regurgitation (AFMR), a common heart valve disorder predominantly affecting individuals who are older or frail.[8]

Researchers analysed data from 1,081 patients with moderate-to-severe AFMR, drawn from two registries: OCENA-Mitral for those who underwent TEER and those who are medically managed from REVEAL-AFMR. The average patient age was over 80, with a majority being women (60.5%). Patients treated with TEER were generally older, had more severe disease, and had additional health conditions compared to those receiving standard medical therapy.



> **Researchers analysed data from 1,081 patients with moderate-to-severe AFMR, drawn from two registries**

After balancing these differences using statistical techniques, results showed that TEER was associated with a 35% reduction in the combined risk of heart failure hospitalisation and death. Additionally, all-cause mortality was 42% lower in the TEER group compared to medical management alone.

Importantly, the benefits of TEER were strongest in patients who had minimal residual mitral regurgitation after the procedure. Patients with more significant residual leakage had similar outcomes to those who did not undergo the intervention.

These findings suggest that TEER offers a meaningful survival and heart failure risk benefit for elderly patients with AFMR, potentially changing the treatment landscape for this vulnerable population. Further studies are warranted to confirm these results and optimise patient selection for TEER therapy.

OCT-Guided Percutaneous Coronary Intervention Improves Outcomes in Acute Coronary Syndrome

NEW data from the OCCUPI trial, presented at EuroPCR 2025, demonstrate that using optical coherence tomography (OCT) to guide percutaneous coronary intervention (PCI) significantly reduces major adverse cardiac events in patients with acute coronary syndrome (ACS) and complex coronary lesions.[9]

While OCT is widely used to improve precision during PCI, its clinical benefit in ACS remains uncertain. The OCCUPI trial was a randomised study designed to assess the impact of OCT-guided versus angiography-guided PCI in patients requiring drug-eluting stents for complex coronary lesions. Researchers conducted a prespecified analysis focusing on the subgroup of patients presenting with ACS. The primary endpoint was the rate of major adverse cardiac events (MACE) at 1 year, defined as a composite of cardiac death, myocardial infarction, stent thrombosis, or ischaemia-driven target-vessel revascularisation.

Out of 1,604 total participants, 790 (49.3%) had ACS at presentation. Among these patients, those receiving OCT-guided PCI had a significantly lower incidence of MACE at 1 year compared to those treated with angiography guidance (4.9% versus 9.5%; hazard ratio: 0.50; 95% CI: 0.29–0.87; p=0.011). Further analysis showed that, within the OCT-guided group, patients who achieved stent optimisation as per OCT criteria experienced even greater benefit, with a MACE rate of 2.9% versus 9.7% among those with suboptimal stent deployment (hazard ratio: 0.29; 95% CI: 0.12–0.72; p=0.004).

> **The primary endpoint was the rate of major adverse cardiac events (MACE) at 1 year**

These findings support the use of OCT guidance in patients who have ACS with complex lesions, reinforcing guideline recommendations and offering a clear path to improved outcomes.

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References

1. Kang WC et al. One-month dual antiplatelet therapy followed by prasugrel monotherapy at a reduced dose: the 4D-ACS randomised trial. EuroPCR, 20-23 May, 2025.
2. Ribichini F. The FAITAVI trial: angiography versus physiology-guided PCI in patients undergoing TAVI – 12-month follow-up data. EuroPCR, 20-23 May, 2025.
3. Kharbanda RK et al. Meta-analysis of individual patient data from the PROTECTED TAVR and BHF PROTECT-TAVI studies. Abstract A68810MC. EuroPCR, 20-23 May, 2025
4. Lønborg J et al. Deferred or conventional stenting in patients with STEMI: 10-year outcome of DANAMI-3-DEFER. Abstract A61911JM. EuroPCR, 20-23 May, 2025.
5. Paulin BR et al. PCI in multivessel disease and STEMI-related cardiogenic shock: a DanGer Shock substudy. Abstract A62091JM. EuroPCR, 20-23 May, 2025.
6. Jurado-Román A et al. Rotational atherectomy, lithotripsy or laser for calcified coronary stenosis. One-year outcomes. Abstract A63071AJ. EuroPCR, 20-23 May, 2025.
7. Gröger M et al. TRI-SCORE for mortality risk prediction after tricuspid valve TEER – the EuroTR registry. Abstract A65957MG. EuroPCR, 20-23 May, 2025.
8. Kaneko T et al. Impact of transcatheter edge-to-edge repair on prognosis in atrial functional mitral regurgitation. Abstract A64257TK. EuroPCR, 20-23 May 2025.
9. Kim BK et al. Optical coherence tomography-guided PCI in acute coronary syndrome patients with complex lesions. Abstract A61110YL. EuroPCR, 20-23 May, 2025.