EuroPCR 2024

From late-breaking clinical trials to abstract presentations, to simulation-based learning sessions, EuroPCR 2024 had it all

Congress Review

Review of the European Association of Percutaneous Cardiovascular Interventions (EuroPCR) 2024

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THIS year's Annual Congress of the European Association of Percutaneous Cardiovascular Interventions (EuroPCR) took place once again in the dazzling city of Paris, France. Inside the walls of the Palais des Congrès, over 11,000 participants from across the globe gathered to discuss the latest advancements in the field of interventional cardiology.

This 4-day course, tailored for interventional cardiologists, nurses, cardiac surgeons, imaging specialists, radiologists, and other practitioners, featured a spectacle of sessions: from late-breaking clinical trials to abstract presentations, to simulation-based learning sessions, EuroPCR 2024 had it all.

> **The 2024 meeting also witnessed a record-breaking 3,100+ submissions of abstracts**

From the Main Arena of the Palais des Congrès, the opening ceremony commenced, featuring Course Directors Thomas Cuisset, Nicolas Dumonteil, and Nieves Gonzalo; EuroPCR Co-Chairman Jean Fajadet; and PCR Chairman William Wijins. There was a noticeable buzz of excitement as colleagues looked forward to the next 4 days of cutting-edge sessions. The highly anticipated 'Major Late-Breaking Trials' session, for instance, revealed three prominent clinical trials believed to make a significant difference to clinical practice. These included 'First TAVI versus SAVR randomised trial in younger low-risk patients with severe tricuspid orbicuspid aortic valve stenosis - results from NOTION-2', by De Backer et al.,[1] 'One-month DAPT followed by 5-month Ticagrelor monotherapy in ACS with DCB' by Ling et al.,[2] and 'Early outcomes of a randomised non-inferiority trial comparing TAVI devices: the LANDMARK trial' by Serruys et al.[3]

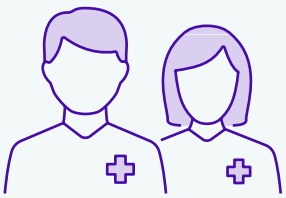
EuroPCR 2024 additionally featured 29 simulation-based learning sessions, providing practical hands-on guidance for procedures such as mitral transcatheter edge-to-edge repair, transseptal puncture, commissural alignment for transcatheter aortic valve implantation, and more. The 2024 meeting also witnessed a record-breaking 3,100+ submissions of abstracts, resulting in over 1,500 presentations in Paris. Twelve live educational cases were also conducted, covering topics such as calcified lesions, transcatheter aortic valve implantation, left main stenosis, and mitral transcatheter edge-to-edge repair. These sessions were broadcasted from eight live centres worldwide, including Netcare

Sunninghill Hospital in Johannesburg, South Africa; Heart Center in Leipzig, Germany; and Hospital Clínico San Carlos in Madrid, Spain.

The prestigious Andreas Grüntzig Ethica Award was presented to two eminent cardiologists: Ottavio Alfieri, IRCCS Ospedale San Raffaele, Milan, Italy; and Frederick St Goar, El Camino Health, Mountain View, California, USA, in recognition of their exceptional contributions to the cardiovascular field. Ottavio Alfieri, renowned for pioneering valve surgery techniques such as the edge-to-edge mitral valve repair and the clover technique, also continues to advance cardiac treatment through the Alfieri Heart Foundation, which he founded. Frederick St Goar, celebrated for his role in developing intravascular ultrasound and the MitraClip device (Evalve, Inc., Menlo Park, California, USA), also makes significant strides in maternal and infant health with the JADA® System (Organon, Jersey City, New Jersey, USA). Both awardees demonstrated extraordinary dedication to improving patient outcomes and advancing medical innovation globally.

References

1. Oler De Backer et al. First TAVI vs. SAVR randomised trial in younger low-risk patients with severe tricuspid or bicuspid aortic valve stenosis - results from NOTION-2 trial. EuroPCR 2024, 14-17 May, 2024.
2. Ling Tao et al. Stepwise dual antiplatelet therapy de-escalation in acute coronary syndrome patients after drug-coated balloon angioplasty. EuroPCR 2024, 14-17 May, 2024.
3. Patrick Serruys et al. Early outcomes of a randomised non-inferiority trial comparing TAVI devices: the LANDMARK trial. EuroPCR 2024, 14-17 May, 2024.

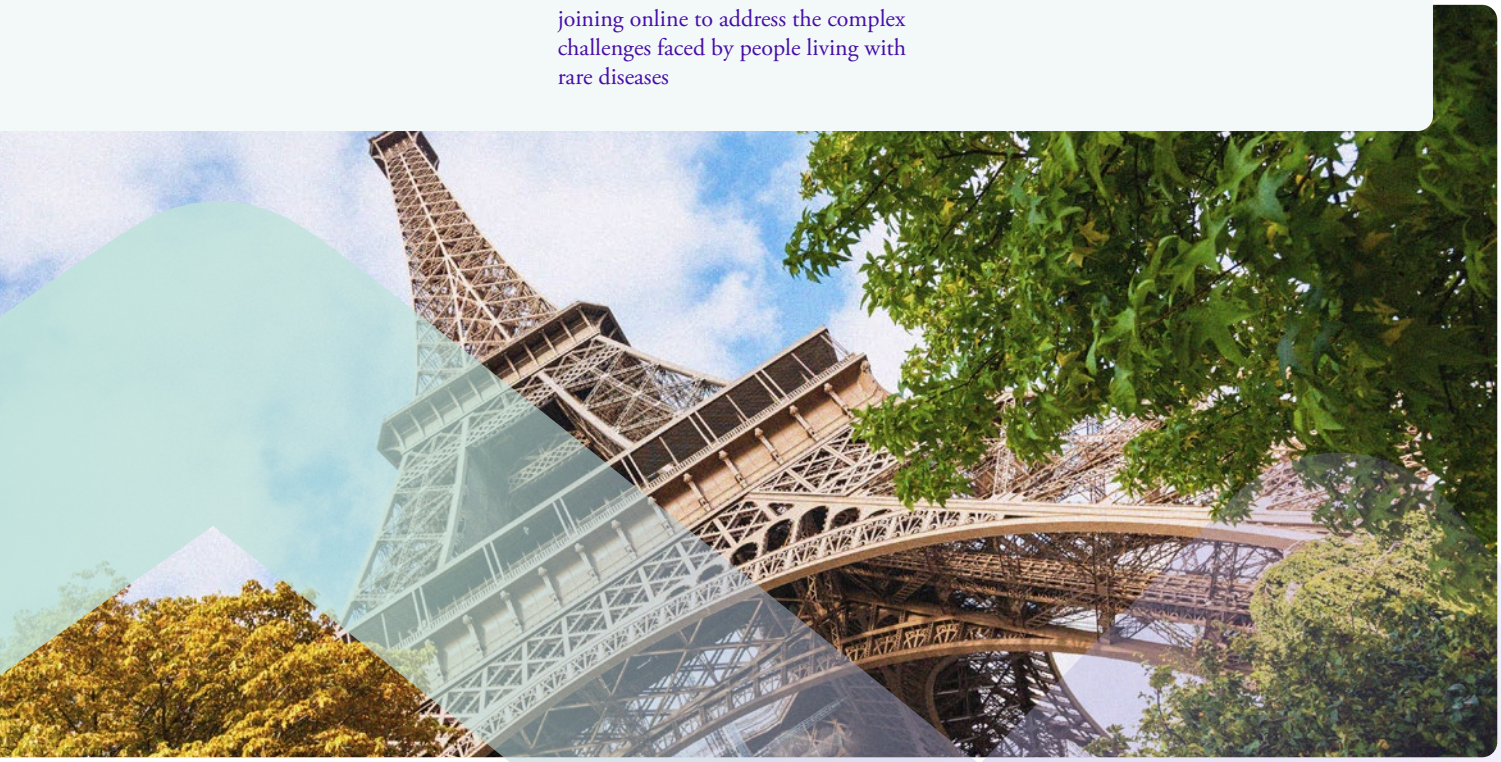


300
in-person delegates

29
simulation-based learning sessions

400
attendees from around the world joining online to address the complex challenges faced by people living with rare diseases

12
Live Educational Cases were also conducted



Novel Anti-Platelet Approach for Patients Treated with Paclitaxel-Coated Balloons

A NOVEL anti-platelet approach for patients with acute coronary syndrome (ACS) treated with paclitaxel-coated balloons (PCB) may represent a viable alternative treatment for low-risk patients with ACS.

Drug-coated balloon treatment as a percutaneous coronary intervention (PCI) is an advantageous management option for coronary atherosclerotic heart disease, as it reduces the duration of anti-platelet medication. The administration of anti-platelet medication following drug-coated balloon treatment lowers the risk of ischaemic events in patients with ACS but is a contributor to major bleeding events, increasing the risk of mortality. Dual anti-platelet therapy (DAPT) utilising aspirin and ticagrelor for 12 months is the standard treatment in patients with ACS undergoing PCI. The REC-CAGEFREE II trial is a first-of-its-kind study investigating alternative anti-platelet therapy strategies specifically for PCB-treated PCI in patients with ACS, comparing stepwise de-escalation DAPT versus conventional DAPT.

The REC-CAGEFREE II trial was an open-label, investigator-initiated, non-inferiority, multicentre randomised study comprised of 1,948 patients randomised to stepwise DAPT de-escalation (n=975) or standard DAPT (n=973). Patients in the stepwise DAPT de-escalation group received aspirin plus ticagrelor for 1 month, followed by 5 months of ticagrelor monotherapy, finishing with 6 months of aspirin monotherapy. Patients receiving standard DAPT therapy had 12 months of aspirin and ticagrelor. The primary objective of the study was an efficacy evaluation of net adverse clinical events after 1 year, including death, stroke, myocardial infarction, revascularisation, and major bleeding, within 1 year.

Non-inferiority of stepwise DAPT de-escalation compared to standard 12-month DAPT was established, with 9.0% de-escalation versus 8.7% standard of patients with ACS experiencing adverse events (P non-inferiority=0.01). Lower rates of Bleeding Academic Research Consortium (BARC) Type 3 or 5 were recorded in the de-escalation group (0.4%) versus the standard group (1.7%) (difference: -1.24%; 95% CI: -2.14– -0.33). However, the composite of all-cause death rates was similar between both groups (8.8% in de-escalation versus 7.6% in standard) (difference: 1.03%; 95 CI: -1.40–3.47).

The REC-CAGEFREE II study provided the first randomised evidence indicating the value of de-escalation therapy with ticagrelor compared to standard treatment. However, several limitations constrain the applicability of the results. Notably, only 40% of subjects could be considered high-risk patients undergoing PCI for ST-elevation myocardial infarction or non-ST-elevation myocardial infarction, while 60% had unstable angina. Furthermore, only 9% of all eligible patients from the multiple centres were enrolled, indicating a highly selected population. Therefore, the results support using stepwise DAPT de-escalation for PCB in low-risk populations, such as individuals with unstable angina with single small vessel disease.

> **The REC-CAGEFREE II study provided the first randomised evidence indicating the value of de-escalation therapy with ticagrelor compared to standard treatment**

Comparing Treatments for Low-Risk Patients with Aortic Stenosis

THE LATEST research presented at EuroPCR 2024 has led to a recommendation from the European Society of Cardiology (ESC) Clinical Practice Guideline that transcatheter aortic valve implantation (TAVI) is indicated as the primary treatment option in patients >75 years who are anatomically suitable for the procedure.

A team based in Denmark compared the use of TAVI and surgical aortic valve replacement (SAVR) in low-risk patients with aortic stenosis (AS) in the NOTION-2 study.

Researchers randomised a group of patients ≤75 years of age (mean age:71.1 years) to TAVI or SAVR, including those with bicuspid valve anatomy. The primary endpoint at 1 year included all-cause mortality, stroke, and rehospitalisation (related to procedure, or valve or heart failure).

> **Further research is needed, but the NOTION-2 trial provided important short-term data**

The team found that TAVI and SAVR showed similar rates of the primary endpoint at 1 year (TAVI 10.2%; SAVR 7.1%; P=0.3). Among the secondary endpoints, TAVI resulted in a lower incidence of new onset atrial fibrillation and major bleeding; however, it did demonstrate a higher incidence of non-disabling stroke, paravalvular leak, and pacemaker implantation. A post hoc analysis demonstrated comparable results between TAVI and SAVR for tricuspid aortic valves (73% of all cases). However, the team did find that, in a non-prespecified analysis of the limited number of patients with bicuspid valves, outcomes were less favourable after TAVI (including the primary endpoint and the incidence of stroke).

These results showed that expanding TAVI indications to young patients with AS and longer life expectancy presents several challenges. Due to the strong indication of less favourable results with TAVI in this cohort, future dedicated and larger randomised studies comparing TAVI and SAVR should be carried out, as this study was done on a relatively small sample size. The longer life expectancy of this group also increased the likelihood of a second TAVI procedure being needed. Further research is needed, but the NOTION-2 trial provided important short-term data concerning the 1-year outcome of younger patients with AS with tricuspid valve anatomy treated with TAVI compared to SAVR.

Early Success for Myval Transcatheter Heart Valve in Landmark Trial

NON-INFERIORITY of the Myval transcatheter heart valve (THV; Meril Life Sciences, Gujarat, India) has been validated by the recent LANDMARK trial, marking a significant milestone in transcatheter aortic valve implantation (TAVI) device comparisons.

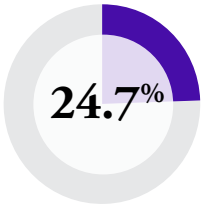
The Edwards SAPIEN balloon-expandable valve (BEV; Edwards Lifesciences, Irvine, California, USA) and Evolut™ supra-annular self-expanding valve (SEV; Medtronic, Dublin, Ireland) are the two most frequently used contemporary THVs, and other new THVs have demonstrated inferior safety and efficacy when put up against them in previous comparisons.

The Myval THV, a novel BEV, offers a unique wider range of prosthesis sizes (1.5 mm increments versus the 3 mm standard), allowing precise anatomical matching of the THV to the patient's specific anatomy. The LANDMARK trial was a randomised controlled trial investigating the non-inferiority of this THV. The primary endpoint at 30-day follow-up was the composite of all-cause death, stroke, life-threatening or disabling bleeding, acute kidney injury, major vascular complications, paravalvular leak, and new permanent pacemaker implantation. Patients included were those clinically and anatomically suitable for a transfemoral TAVI procedure, including those with bicuspid aortic valve phenotypes and varying levels of surgical risk.

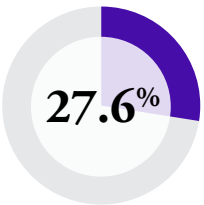
A total of 768 patients (mean age: 80 years) at low surgical risk were randomised 1:1 to receive either the Myval THV or an alternative contemporary TAVI device (BEV or SEV). At 30 days, the primary composite endpoint occurred in 24.7% of the Myval group and 27.6% of the control group, demonstrating non-inferiority of the Myval THV (risk difference: -2.7%; one-sided upper 95% CI: 3.6%; P<0.0001 for non-inferiority). No significant differences were found in any individual components of the primary endpoint or in technical and device success. Secondary endpoints, including pacemaker implantation rates and haemodynamic parameters, were also similar between groups.

These findings validated the non-inferiority of the Myval THV compared to established BEVs and SEVs. Importantly, the trial also included patients reflecting contemporary clinical practice, with varying surgical risks, and a percentage having bicuspid aortic valves. While short-term outcomes are promising, long-term data on haemodynamic performance and structural valve durability are necessary. A follow-up extending to 10 years is planned to address these questions.

At 30 days, the primary composite endpoint occurred in

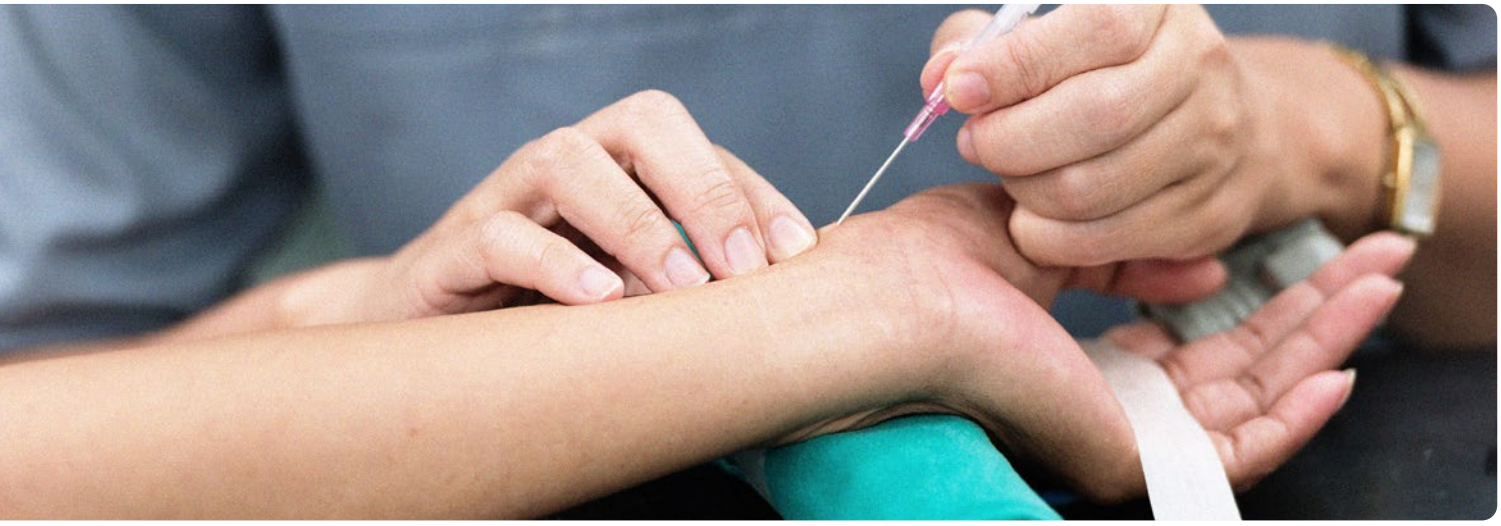


of the Myval group and



of the control group

Radial Artery Occlusion: Distal Versus Conventional Transradial Access



TRANSRADIAL access (TRA) is the preferred strategy for coronary procedures due to the decreased risk of radial artery occlusion (RAO), which can affect future procedures and treatments.

600

patients who underwent coronary angiography via 6-F radial access

According to research presented at EuroPCR 2024, distal TRA (dTRA) does not reduce RAO risk more than conventional TRA (cTRA) during diagnostic coronary angiography, despite previous suggestions in this field of research.

The authors conducted a randomised, single-centre, open-label trial termed the RAPID trial. The trial consisted of 600 patients who underwent coronary angiography via 6-F radial access. Subjects were randomly allocated to receive dTRA or cTRA, and allocation was further stratified by periprocedural heparin use and pre-existing oral anticoagulation. The primary analysis consisted of patients with diagnostic coronary angiography only, excluding those undergoing percutaneous coronary intervention, with a final total of 222 patients in the dTRA group and 217 in the cTRA group.

The researchers discovered that dTRA resulted in significantly more puncture attempts (2.4±2.1 versus 1.5±1.1; P<0.001) and significantly more instances of access site crossover due to failed punctures (11.3% versus 4.1%; P=0.005). Consequently, the total procedural time for dTRA was significantly longer than for cTRA (25 min versus 20 min; P=0.001), with no significant difference in fluoroscopy time, dose area product, or contrast volume. The researchers used vascular ultrasound and frequency of puncture-site bleeding events to examine the incidence of RAO in both groups. The team discovered that there were similar rates of RAO (20.3% dTRA versus 21.2% cTRA; P=0.810) and similar rates of puncture-site related bleedings (4.1% dTRA versus 6.9% cTRA; P=0.188) between the dTRA and cTRA groups. These findings were consistent across subgroups stratified by heparin use and pre-existing anticoagulation.

Therefore, the authors concluded that dTRA did not reduce the risk of RAO and puncture-site bleeding. Furthermore, dTRA had longer procedure times than cTRA due to a higher number of puncture attempts and access site crossovers.

