



*Cette présentation a été développée à des fins éducatives et représente des évaluations et des opinions indépendantes des auteurs et des contributeurs indépendamment de la société d'exploitation qui sponsorise le présent symposium.*

*Dr. Benjamin Faurie est rémunéré et présenté au nom de Cardinal Health et doit présenter les informations conformément aux exigences réglementaires applicables.*

*Avant d'utiliser tout dispositif médical, passez en revue toutes les informations pertinentes, y compris l'étiquette et le mode d'emploi.*

*RA 26/05/2021*

# Pourquoi miniaturiser L'approche radiale?

## Potential conflicts of interest

**Speaker's name:** Benjamin Faurie

I Have the following conflicts of interest to declare:

**Consultant & speaker fees:** Asahi, Boston Scientific, Cordis, Teleflex

**Equity:** 4C Medical, Electroducer

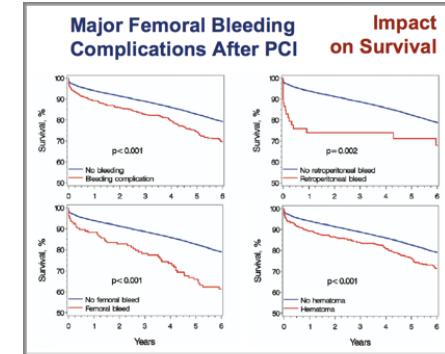
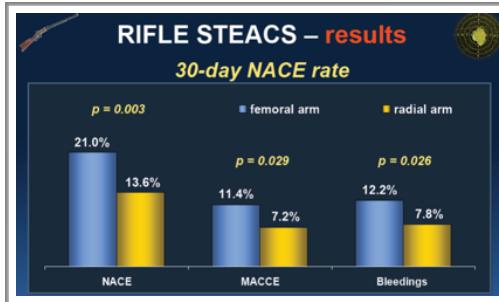
# Pourquoi miniaturiser L'approche radiale?

- 
- 1. Être moins traumatisante**
  - 2. Pouvoir faire plus en radial**
  - 3. Diminuer la morbidité/mortalité**

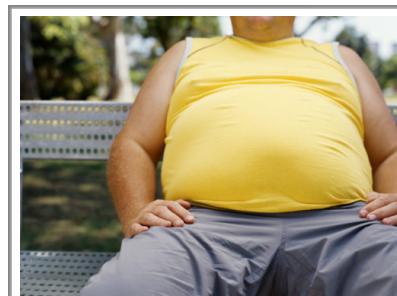
# Pourquoi miniaturiser L'approche radiale?

## Background n°1: TRA decrease complications

- TRA is **Safe**, decrease **Vascular Complications** and... **Mortality** ! Especially in **high risk patients** : ACS, Old, Obese, Frail ...



- **but...** (Paradox n°1) : TRA can be **challenging** !



# Pourquoi miniaturiser L'approche radiale?

## Background n°2: TRA needs small Ø GC

- Decreasing GC diameter:- decreases vascular complications for TFA
  - decreases Radial Artery Occlusion rate for TRA



- But... (Paradox n°2) : small catheter diameter limits backup support & possibilities for Complex PCI (Rotablator, CTO, LM bifurcation)



Patent Hemostasis Impact in Clinical Routine: Large Monocentric Echo-Doppler Study of Radial Artery Patency After Coronary Catheterization.  
Rougé A, Faurie B, Abdellaoui M, Monségu J. J Invasive Cardiol. 2021 Feb;33(2):E77-E82. Epub 2021 Jan 7.



# Être moins traumatisante

## Pour diminuer les complications au point de ponction: thromboses / hématomes

**1106 Patients; 5-6 Fr & 7 Fr sheathless; HNF= 69 UI/kg**

I Endpoint: Taux occlusion Radiale à 1 Mois en doppler

**RAO= 0.99%**

**98,6% patent haemostasis**

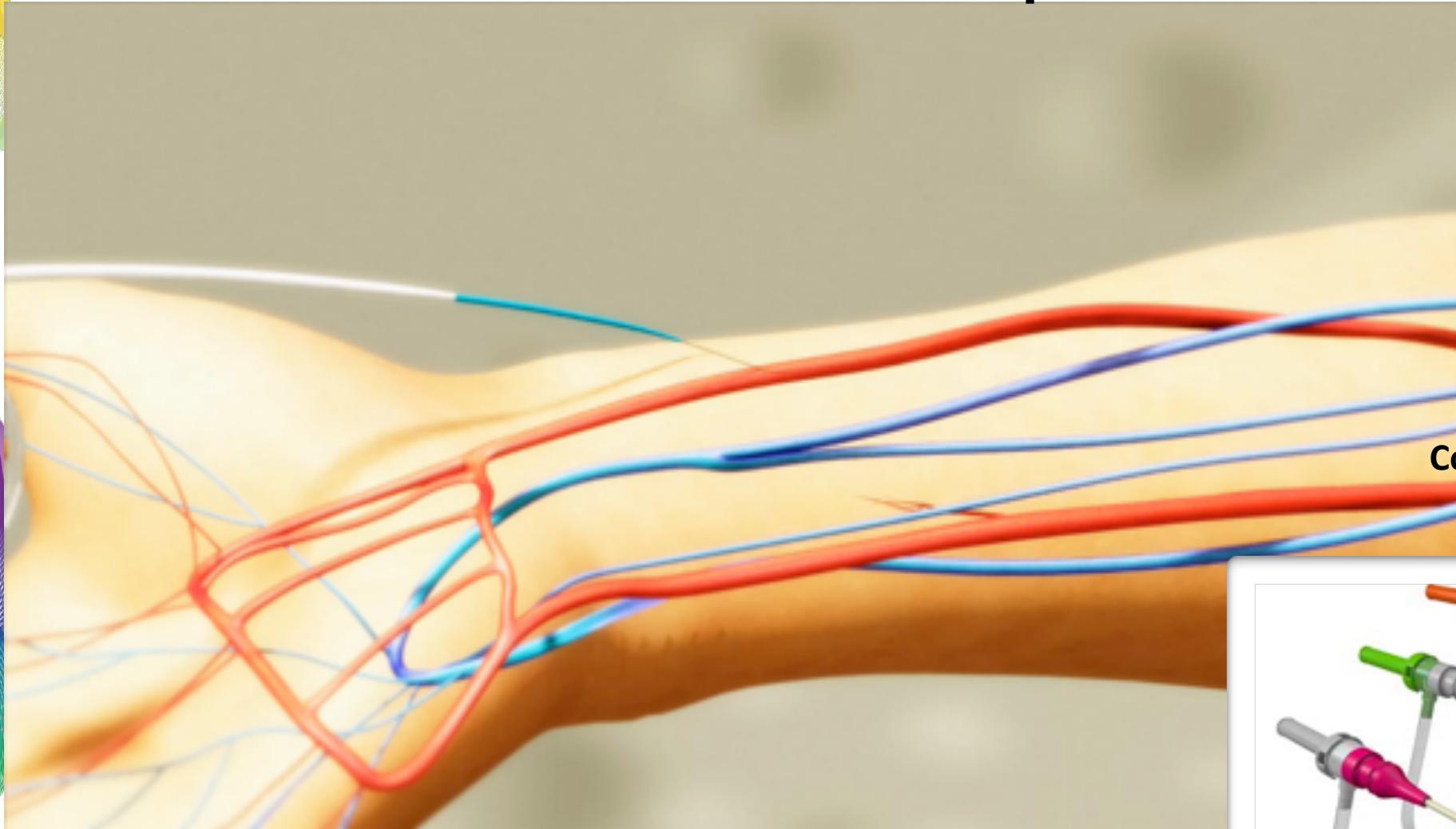


**Patent Hemostasis Impact in Clinical Routine:  
Large Monocentric Echo-Doppler Study of Radial Artery Patency After Coronary Catheterization**

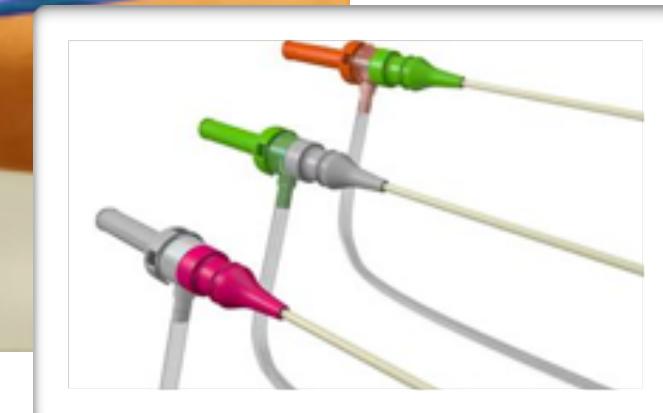
Alain Rougé, MD<sup>1</sup>; Benjamin Faurie, MD<sup>1</sup>; Mohamed Abdellaoui, MD<sup>1</sup>;  
Jacques Monségu, MD, PhD<sup>1</sup>

# Être moins traumatisante

## 1. Introducateurs parois fines



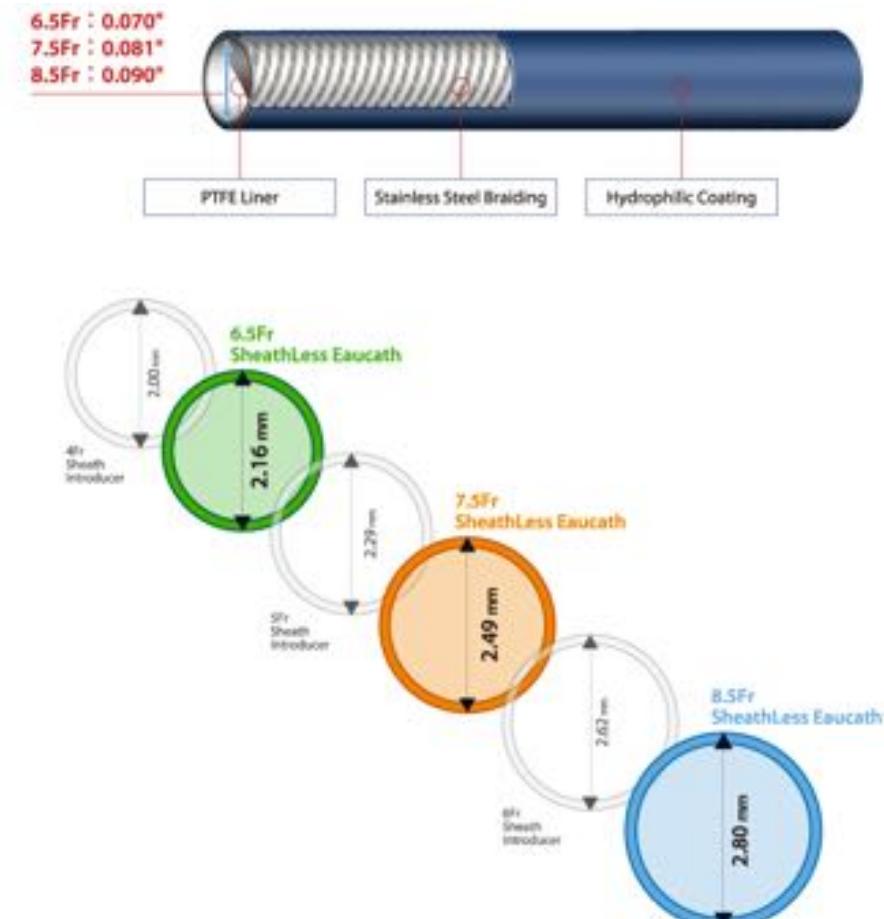
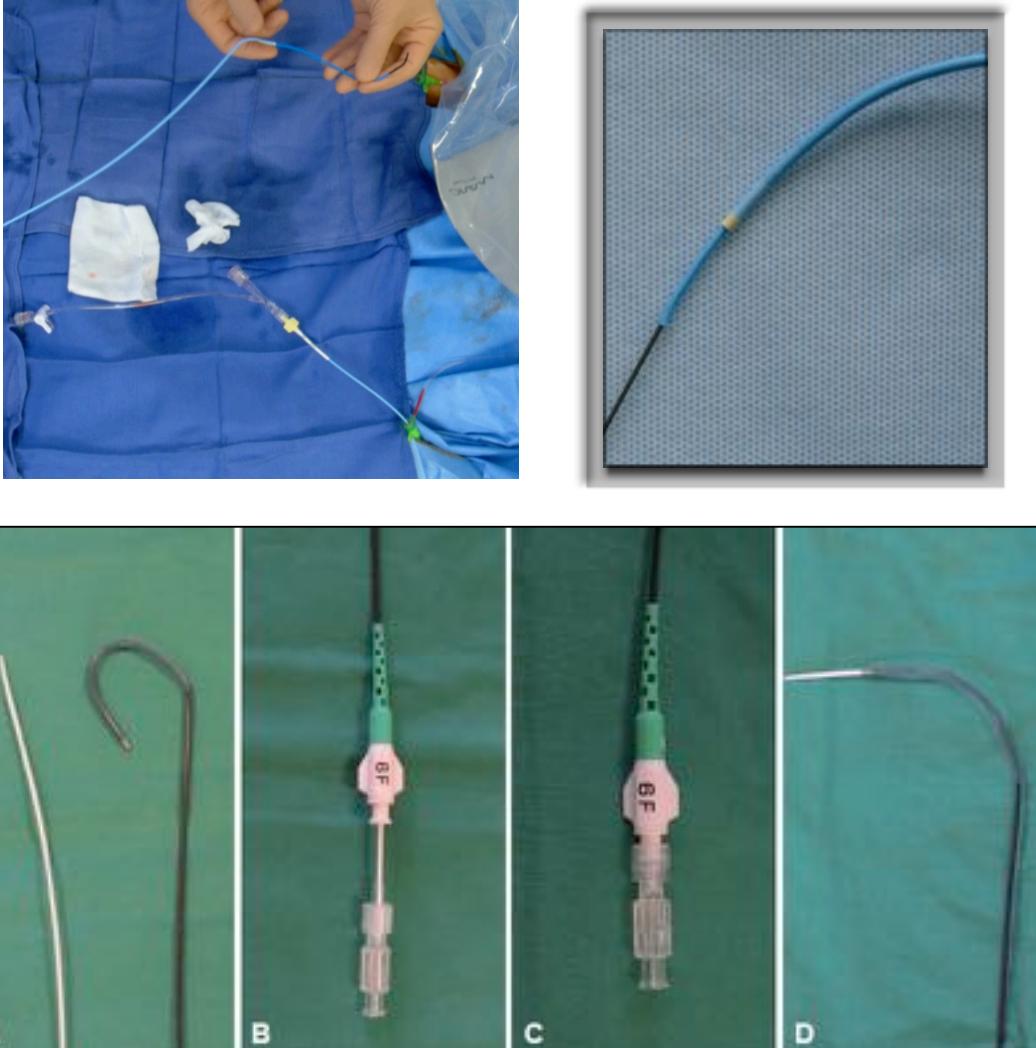
Cordis RAIN Sheath® Introducers



Slender® Introducers

# Être moins traumatisante

## 2. Sheathless guiding catheters

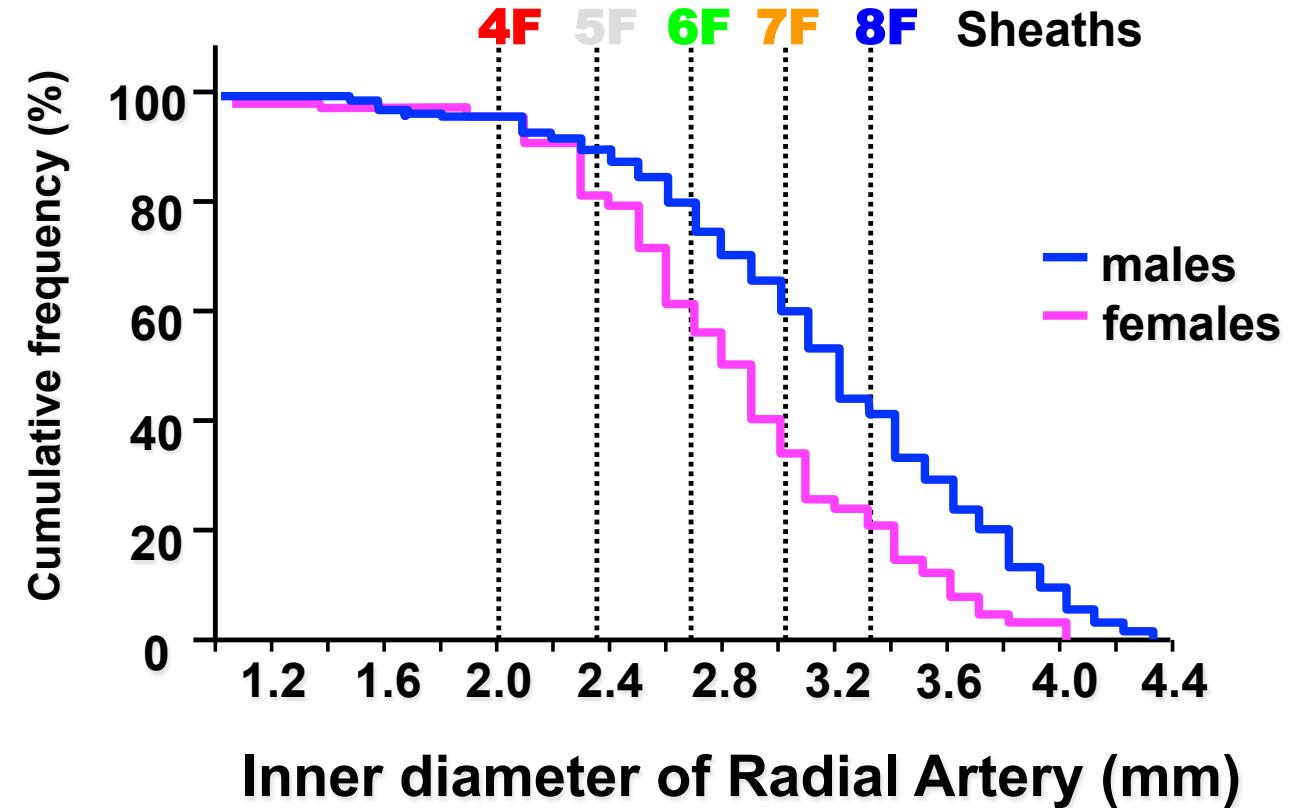


# Être moins traumatisante



# Pouvoir faire plus en radial

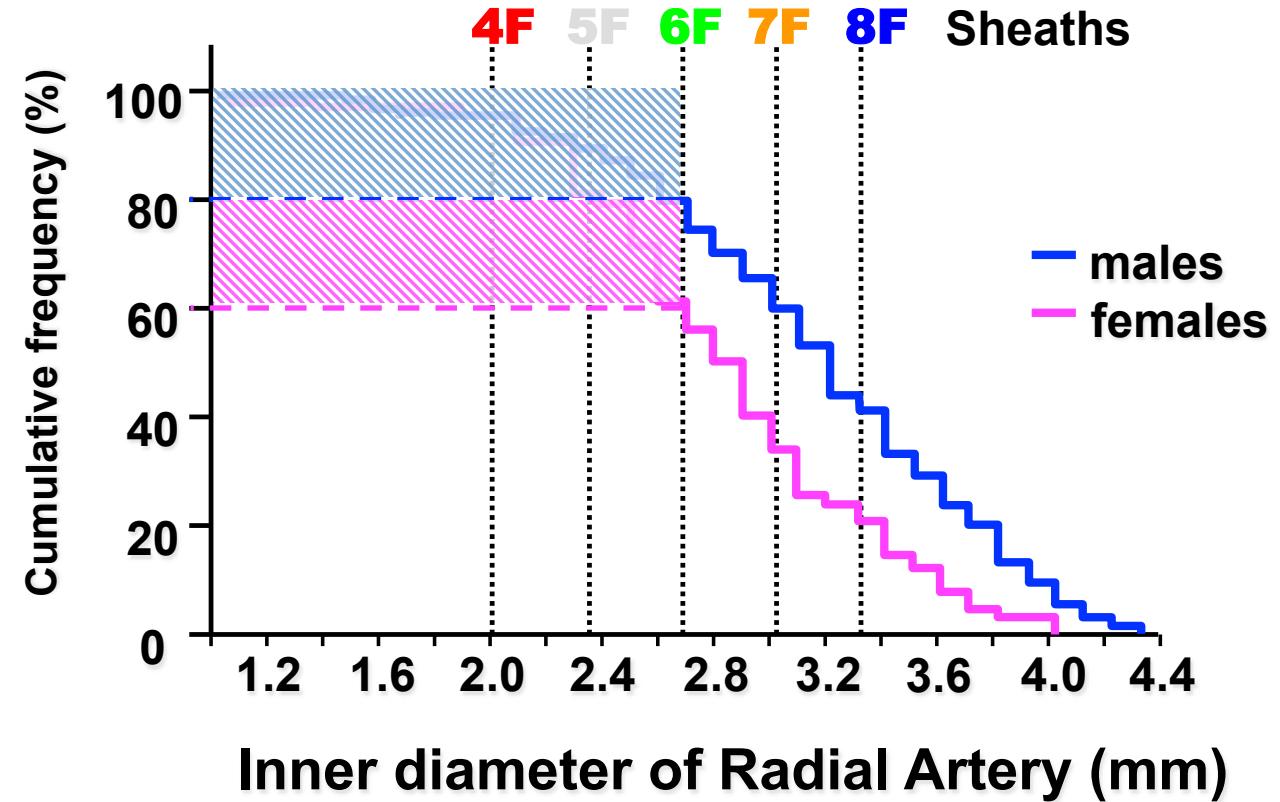
Which guiding solutions with a small radial artery?



Saito S. CCI 1999

# Pouvoir faire plus en radial

Which guiding solutions with a small radial artery?



Saito S. CCI 1999

# Pouvoir faire plus en radial (même de la CTO)

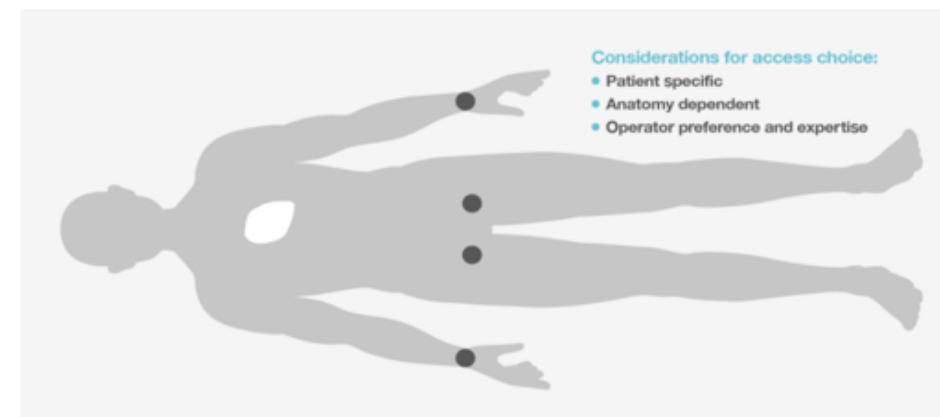
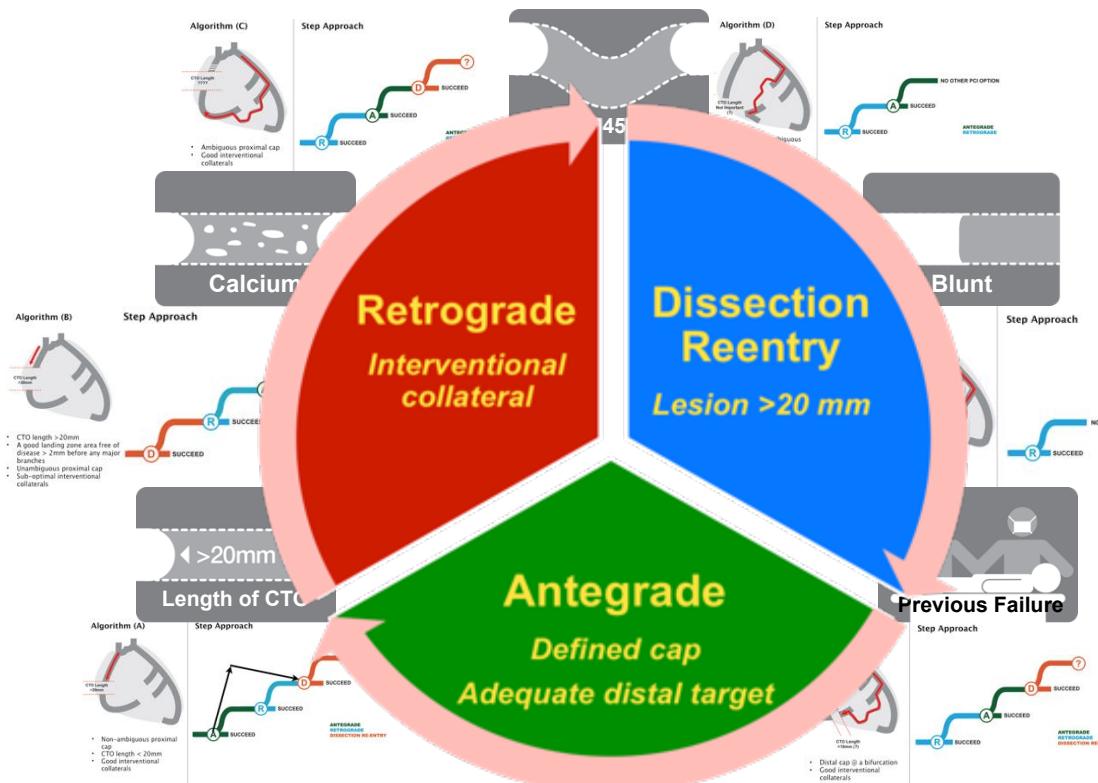
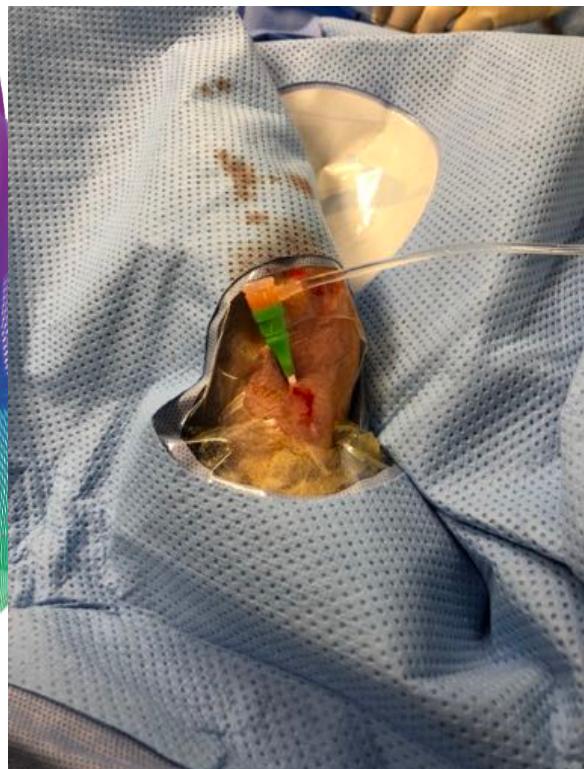
**« No back-up.... No PCI ! »**

**« No back-up.... No CTO PCI ! »**

# Pouvoir faire plus en radial



**Big Guides!**



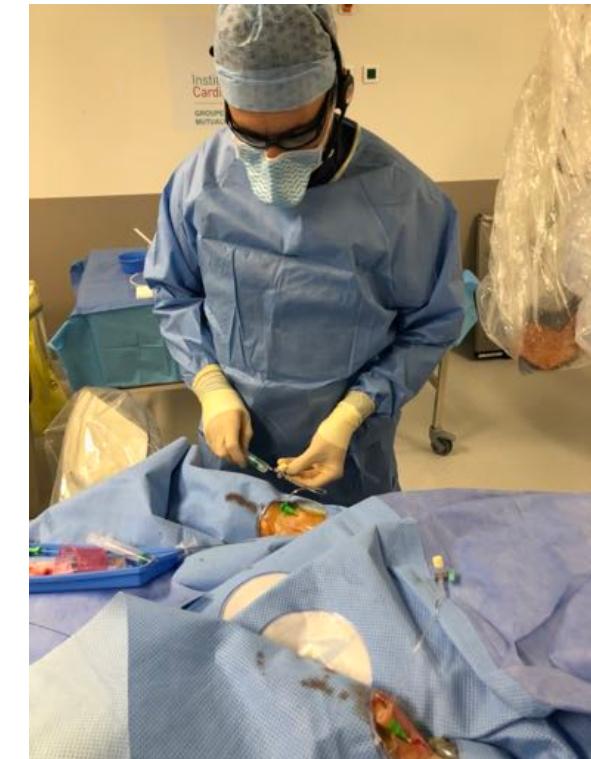
The Hybrid algorithm for the treatment of Chronic Total Occlusions in Europe:

the RECHARGE Registry

Joren MAEREMANS, MSc (1), Simon WALSH, MD (2), Paul KNAAPEN, MD, PhD (3), Alexandre AVRAN, MD (4), Colm HANRATTY, MD (2), Benjamin FAURIE, MD, PhD (5), Pierfrancesco AGOSTONI, MD (6), Erwan BRESSOLLETTE, MD (7), James SPRATT, MD (8), Peter KAYAERT, MD (9), Alan BAGNALL, MD (10), Dave SMITH, MD (11), Margaret MCENTEGART, MD (12), William SMITH, MD (13), Paul KELLY, MD (14), John IRVING, MD (15), Elliott SMITH, MD (16), Julian STRANGE, MD (17), Jo DENIS, MD, PhD (18)

On behalf of the RECHARGE investigators

**Many Options !**



# Pouvoir faire plus en radial

A randomised comparison of incidence of radial artery occlusion and symptomatic radial artery spasm associated with elective transradial coronary intervention using 6.5 Fr SheathLess Eaucath Guiding Catheter vs. 6.0 Fr Glidesheath Slender

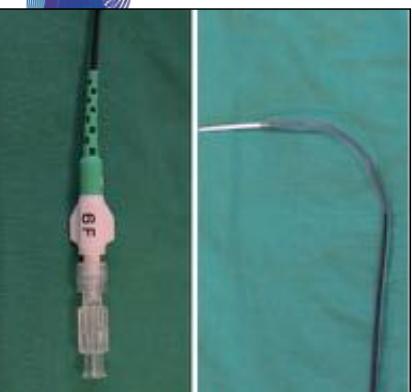
Kazunori Horie<sup>1\*</sup>, MD; Norio Tada<sup>1</sup>, MD; Tsuyoshi Isawa<sup>1</sup>, MD; Takashi Matsumoto<sup>1</sup>, MD; Masataka Taguri<sup>2</sup>, PhD; Shigeaki Kato<sup>1</sup>, PhD; Taku Honda<sup>1</sup>, MD; Tatsushi Ootomo<sup>1</sup>, MD; Naoto Inoue<sup>1</sup>, MD

EuroIntervention 2018;13:2018-2025. DOI: 10.4244/EIJ-D-17-00239

I Endpoint: RAo and RA spasm

Sheathless= **0%** and Glide Sheaths= **2%** ( $p=0.031$ )

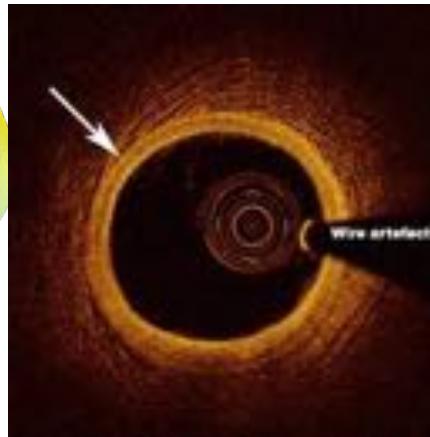
Multivariate analysis: larger sheath / RA ratio predicts **Spasm & Occlusion** ( $p=0.007$ )



VS



# Pouvoir faire plus en radial



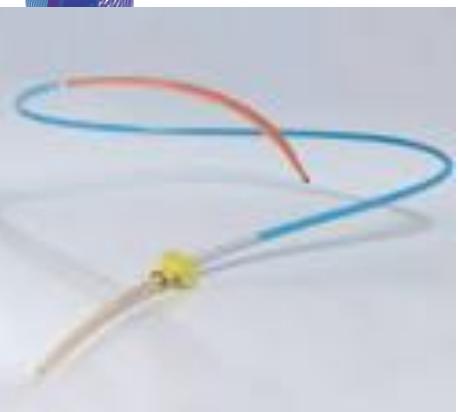
## A randomised trial of sheathless versus conventional access for transradial interventions

Dirk Jan van der Heijden<sup>1</sup>, MD; Maarten A.H. van Leeuwen<sup>2</sup>, MD; Stijn L. Brinckman<sup>3</sup>, MD; Maribel I. Madera Cambero<sup>3</sup>, MD; Tamara Aipassa<sup>4</sup>, MD; Priya Vart<sup>5</sup>, PhD; Robert-Jan M. van Geuns<sup>4</sup>, MD, PhD; Niels van Royen<sup>4</sup>, MD, PhD

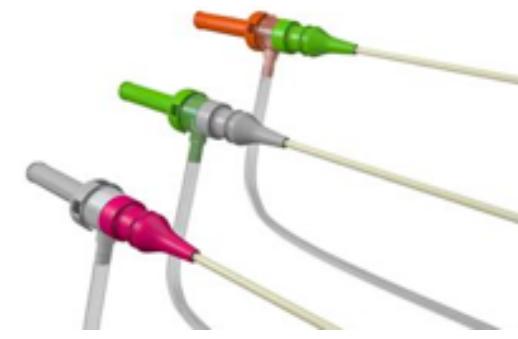
EuroIntervention 2021;16:1356-1358. DOI: 10.4244/EIJ-D-19-00380

**I Endpoint: RA vascular injury / OCT** Sheathless Railway (25)= 56% and Conventional intros= 39% (p=0.27)

Limitations: clinical impact unknown



VS





# Diminuer la Morbi-Mortalité



# First Ambulatory TAVI !

## Welcome to Editorial Manager® for Canadian Journal of Cardiology

### Outpatient TAVR procedures : early feasibility experience of treating valve disease during Covid-19 pandemic

The evolution of transcatheter aortic valve replacement (TAVR) has led to improved safety and efficacy, such that early discharge and one case of same-day discharge after TAVR have been reported by experienced teams. However, to the best of our knowledge, we describe here for the first time a small series of outpatients TAVR procedures in selected intermediate-risk patients.

#### Background:

Nowadays, Furthermore with the Covid-19 pandemic, the availability of limited beds to handle the large volume of coronary and valve interventions

promotes outpatient efficient for PC successful TAVR fully ambulatory

The miniaturization also simplified bleeding and stroke. Others techniques ultrasound-guided access (5), direct MACE, intensiv

community adoption



**Structural Heart**  
The Journal of the Heart Team

Taylor & Francis Group

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/ushj20>

### Safety and Feasibility of Same Day Discharge after Transcatheter Aortic Valve Replacement Post COVID-19

Mark J. Russo, Alexis K. Okoh, Katherine Stump, Meghan Smith, Ikenna Erinne, Justin Johannesen, Ashok Chaudhary, Antonio Chiricolo, Abdul Hakeem, Anthony Lemaire, Leonard Y. Lee & Chunguang Chen

**A** **B** **WILEY**

**ORIGINAL STUDIES**

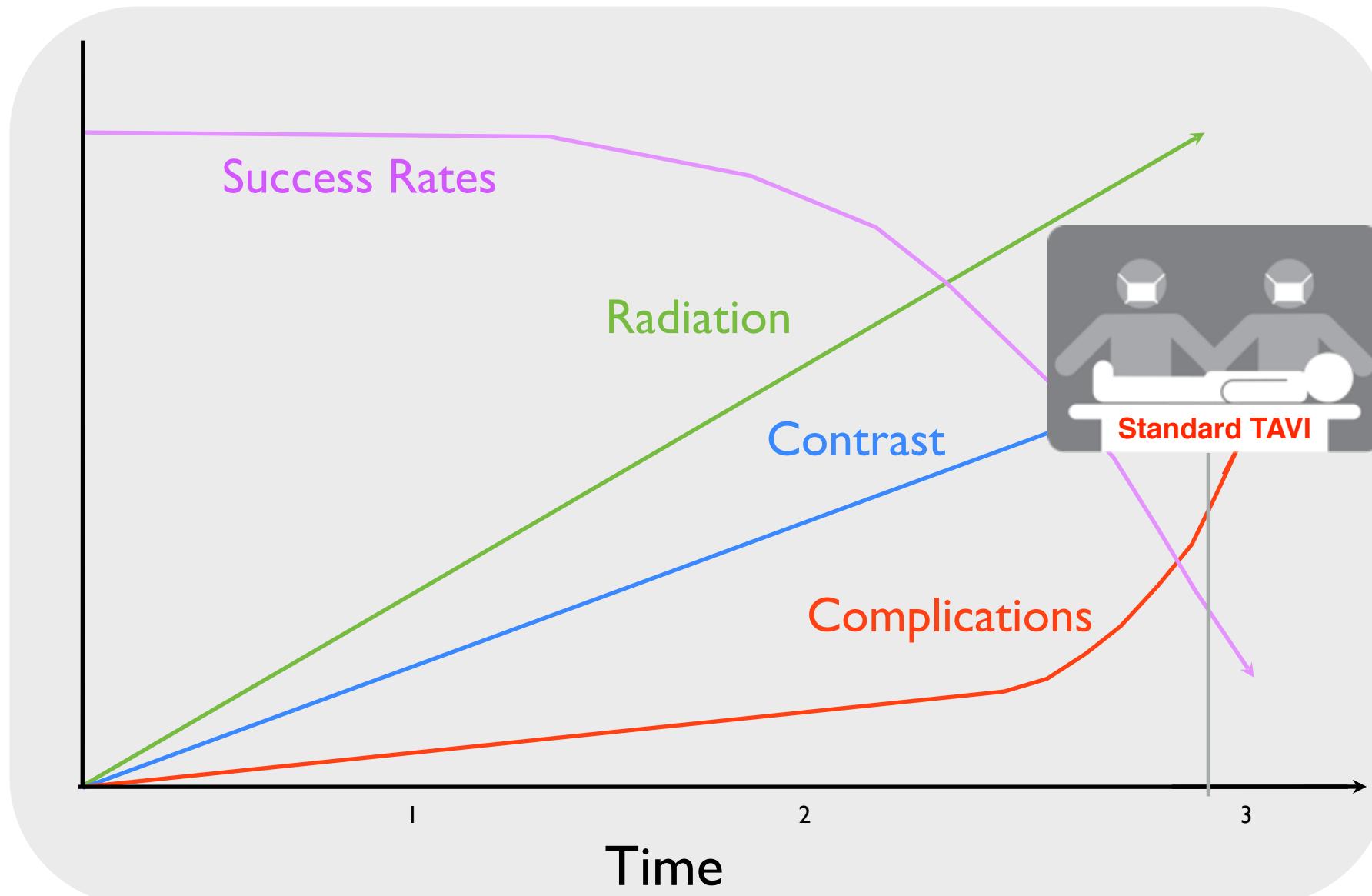
### Safety of same-day discharge after uncomplicated, minimalist transcatheter aortic valve replacement in the COVID-19 era

Emily Perdoncin MD<sup>1</sup> | Adam B. Greenbaum MD<sup>1</sup> | Kendra J. Grubb MD, MHA<sup>2</sup> | Vasilis C. Babaliaros MD<sup>1</sup> | Patricia Keegan DNP<sup>1</sup> | Brendan Ceretto-Clark MSPH<sup>3</sup> | Jane Wei MPH<sup>3</sup> | Robert A. Guyton MD<sup>2</sup> | Gaetano Paone MD<sup>2</sup> | Isida Byku MD<sup>1</sup> | Patrick T. Gleason MD<sup>1</sup> | Kelby Biven PA-C<sup>1</sup> | Preethy Mathew NP<sup>1</sup> | Cecilia Mortorano MSN<sup>4</sup> | Errol K. Inci MD<sup>1</sup> | Christian Faaborg-Andersen BS<sup>1</sup> | Rae Mitchell MSN<sup>4</sup> | Chandan M. Devireddy MD, MBA, FSCAI<sup>1</sup>

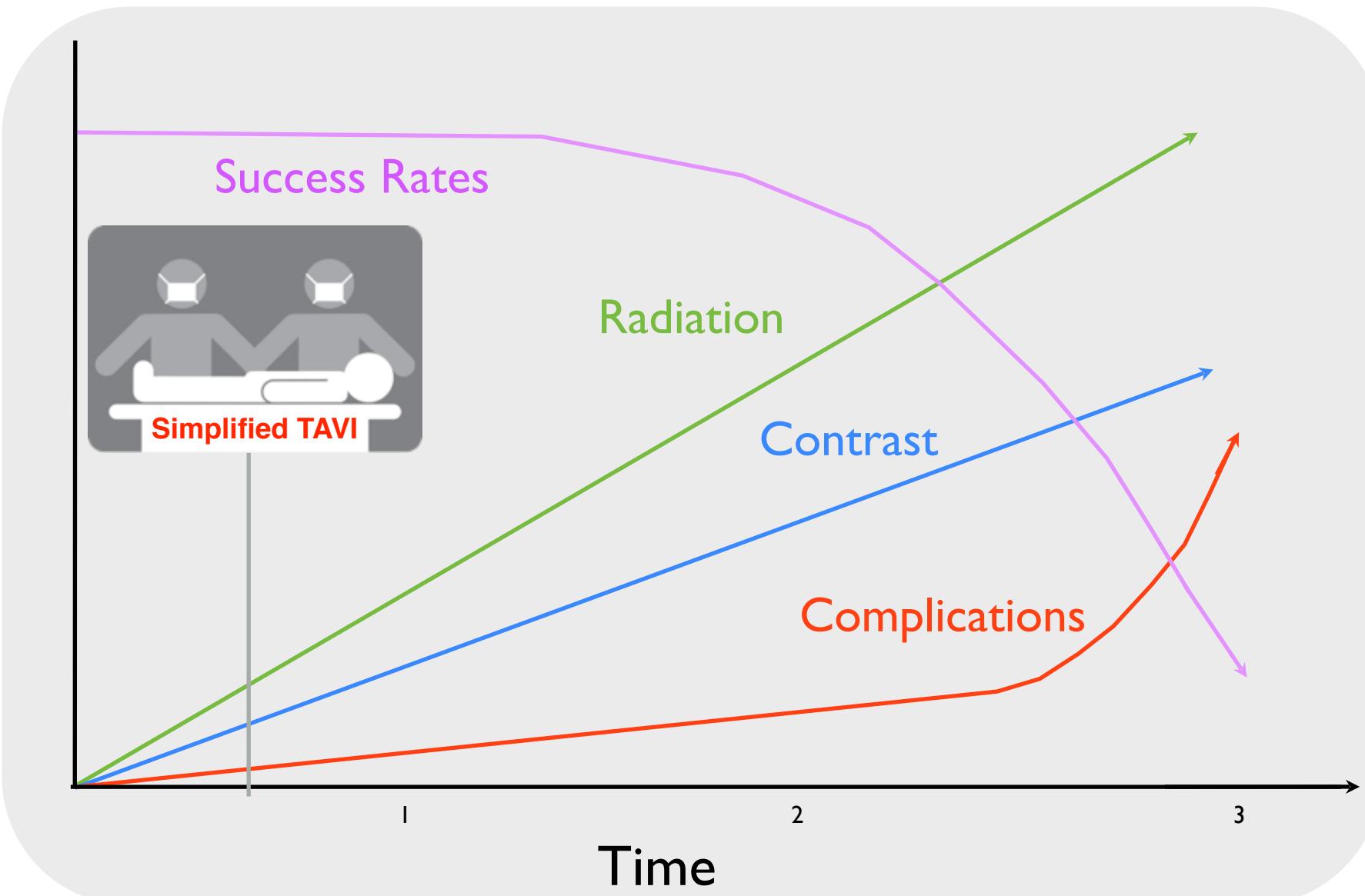
<sup>1</sup>Division of Cardiology, Emory Structural Heart and Valve Center, Emory University Hospital Midtown, Atlanta, Georgia  
<sup>2</sup>Division of Cardiothoracic Surgery, Emory Structural Heart and Valve Center, Emory University Hospital Midtown, Atlanta, Georgia  
<sup>3</sup>Rollins School of Public Health, Emory University, Atlanta, Georgia  
<sup>4</sup>Emory Healthcare, Emory University Hospital Midtown, Atlanta, Georgia

**Abstract**  
**Objectives:** We sought to evaluate the safety, efficacy and feasibility of same-day discharge after uncomplicated, minimalist TAVR.  
**Background:** At the start of the COVID-19 pandemic, we created a same-day discharge (SDD) pathway after conscious sedation, transfemoral (minimalist) TAVR to help minimize risk of viral transmission and conserve hospital resources. Studies support that next-day discharge (NDD) for carefully selected patients following minimalist TAVR is safe and feasible. There is a paucity of data regarding the safety of SDD after TAVR.

# Simplify TAVI



# Simplify TAVI



# Better outcomes with DWP® / TRA / USGuided puncture

**3 years retrospective study:**  
**-US guided puncture: Vasc Complications OR=0.29 (p<0.001)**  
**-Direct Wire Pacing: Tamponades OR=0.19 (p=0.009)**



Catheterization and Cardiovascular Interventions 00:00-00 (2018)

## Original Studies

### Rapid Pacing Using the 0.035-in. Retrograde Left Ventricular Support Wire in 208 Cases of Transcatheter Aortic Valve Implantation and Balloon Aortic Valvuloplasty

Roland Hilling-Smith,<sup>1</sup> MD FRCR, James Cockburn,<sup>1</sup> MD MRCP, Maureen Dooley,<sup>1</sup> MD MRCP, Jessica Parker,<sup>1</sup> MSc MRCP, Andrew Newton,<sup>2,3</sup> BSc, Andrew Hill,<sup>4</sup> MD FRCR, Uday Trivedi,<sup>5</sup> MD FRCR, Adam de Belder,<sup>6</sup> MD FRCR, and David Hildick-Smith,<sup>1</sup> MD FRCR

**Introduction and Method:** Transcatheter aortic valve implantation (TAVI) and balloon aortic valvuloplasty (BAV) are now well-established percutaneous procedures. These procedures almost always require bursts of rapid ventricular pacing to temporarily reduce cardiac output to facilitate the procedure, usually done via a temporary wire inserted into the right ventricle. We describe a case series of 132 cases of TAVI and 76 BAV done using ventricular pacing via the left ventricle lead by simply connecting one electrode to the permanent atrial lead and the other to the left ventricle lead. In all the 132 TAVI cases 54% of these were Edwards Sapien, Medtronic CoreValve and Boston Scientific Lotus and 76 BAV were successfully performed using pacing through the LV wires. No BAV patients required temporary pacing wire (TPW) or permanent pacemaker (PPM) insertion. Of the 76 BAV patients, 13 (17%) had TPW inserted previously due to complete heart block or hemodynamic instability. Twenty eight patients (21.2%) required PPM following TAVI, 9 of whom were within the first 24 h. Average time to transcatheater implantation was 3.7 days. **Conclusion:** Rapid ventricular pacing via the LV wires is a safe and effective alternative to TPW for transcatheter valve intervention and balloon aortic valvuloplasty. It eliminates the need for a temporary pacing wire with its attendant risks in the vast majority of cases. Furthermore, most pacemakers following TAVI are required late, after the first 24 h period, by which time the TPW has already usually been removed.

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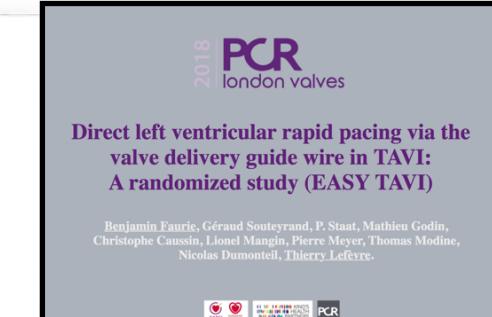
## INTRODUCTION

Transcatheter aortic valve implantation (TAVI) is now an accepted technique for the treatment of patients with severe symptomatic aortic stenosis. Atrial fibrillation risk [1]. Temporary ventricular pacing is required during the procedure in order to reduce cardiac output to facilitate balloon aortic valvuloplasty (BAV), TAVI valve deployment, and post deployment balloon dilation. Different valve devices and techniques may require pacing at different stages, however the majority of rapid ventricular pacing is required in the majority of TAVI procedures [2,3].

Sussex Cardiac Centre, Brighton and Sussex University Hospitals, Royal Sussex County Hospital, Brighton, BN2, England, United Kingdom  
\*Correspondence to: Roland Hilling-Smith, Sussex Cardiac Centre, Brighton and Sussex University Hospitals, Royal Sussex County Hospital, Brighton, BN2 5EE, United Kingdom. E-mail: roland.hilling-smith@susht.nhs.uk

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Published online 09 March 2016 in Wiley Online Library (wileyonlinelibrary.com)

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Received: 24 October 2019 | Accepted: 20 December 2019  
DOI: 10.1002/ccd.28697

## ORIGINAL STUDIES



WILEY



## A less-invasive totally-endovascular (LITE) technique for trans-femoral transcatheter aortic valve replacement

Francesco Burzotta MD, PhD<sup>1</sup> | Cristina Aurigemma MD, PhD<sup>1</sup> | Enrico Romagnoli MD, PhD<sup>1</sup> | Osama Shoeib MD, PhD<sup>2</sup> | Giulio Russo MD<sup>1</sup> | Aniello Zambrano MD<sup>1</sup> | Diana Verdirosi MSc<sup>1</sup> | Antonio Maria Leone MD, PhD<sup>1</sup> | Piergiorgio Bruno MD<sup>1</sup> | Carlo Trani MD<sup>1</sup>

<sup>1</sup>Institute of Cardiology, Fondazione Policlinico Universitario A. Gemelli IRCCS, Università Cattolica del Sacro Cuore, Rome, Italy  
<sup>2</sup>Cardiology Department, Tanta University, Tanta, Egypt

## Correspondence

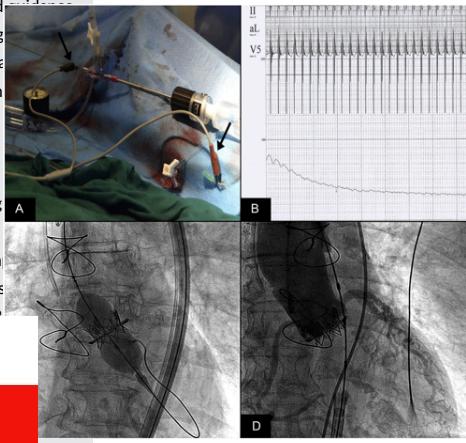
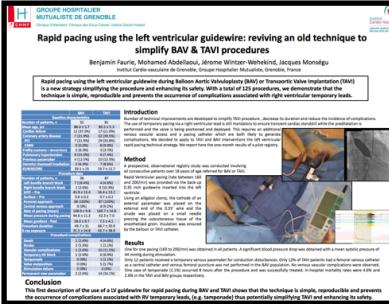
Ultrasound guided vascular access site management and left ventricular pacing are associated with improved outcomes in contemporary transcatheter aortic valve replacement: Insights from the OxTAVI registry.  
Kotronias RA, Scarsini R, De Maria GL, Rajasundaram S, Sayeed R, Krasopoulos G, Grebenik C, Keiralla A, Newton JD, Banning AP,

1. precise TAVR access puncture using angiographic-guidewire-ultrasound guidance
2. "femoral access" (to guide valve positioning, femoral-access hemostasis and to manage eventual access-site complications)
3. non-invasive pacing (by retrograde left ventricle stimulation or by defibrillator external programmer)

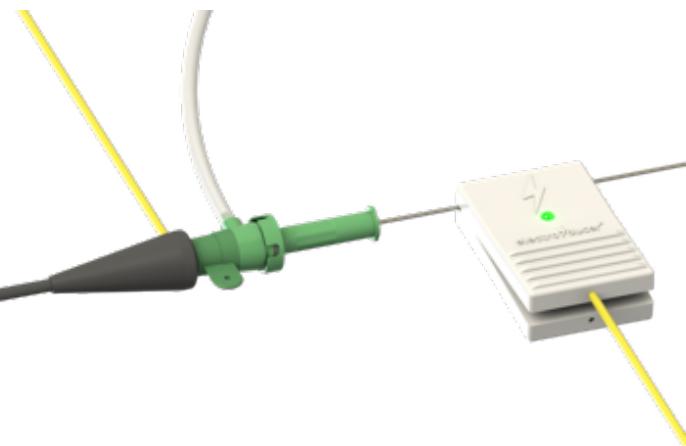
The LITE technique has been systematically adopted at our Institution. details, complications and clinical events occurring during hospitalization specifically recorded. Major vascular complications and life-threatening bleedings were the primary study end-points.

**Results:** A total of 153 consecutive patients referred for TF-TAVR were analyzed using the LITE technique. Mean predicted surgical operative mortality was 3.9%. In 137 (90.2%) patients TAVR was completed without the need for additional femoral temporary pace-maker implantation. Major vascular complications, 2 (1.3%), life-threatening or major bleedings occurred in 3 patients (2.0%).

**Conclusions:** TF-TAVR according to LITE technique is feasible and is associated with



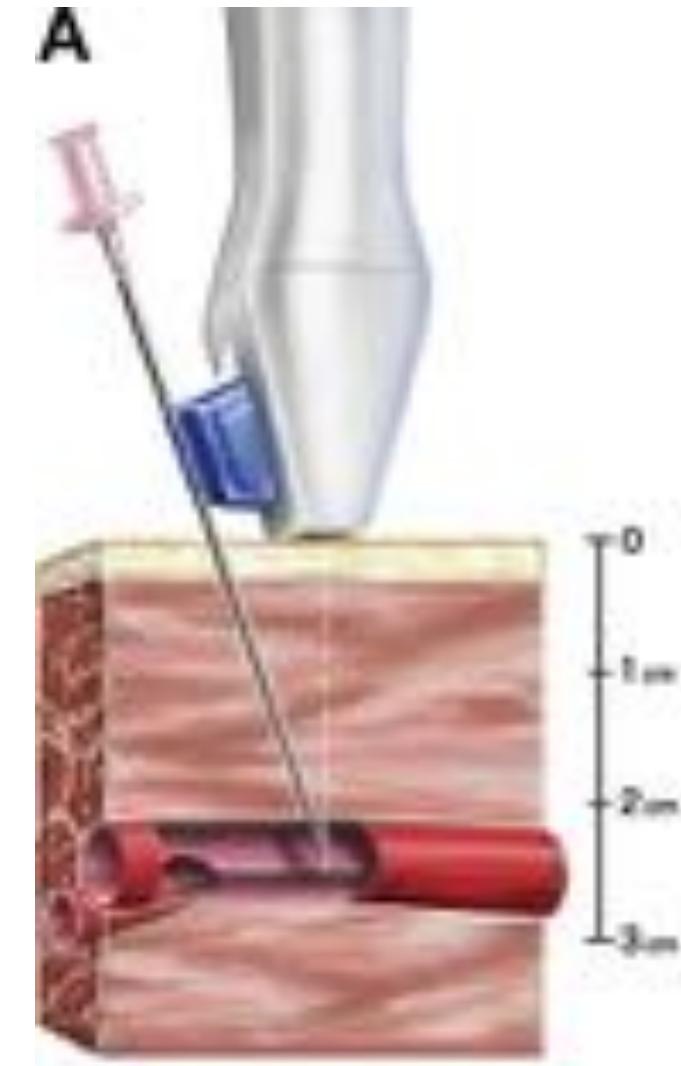
# Better TAVR outcomes with DWP® / TRA / USGuided puncture



Direct Wire Pacing

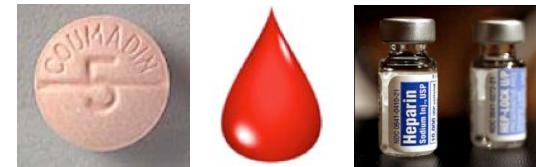


TRA Secondary Access



US-Guided TF Puncture

# Diminuer la Morbi-Mortalité



**523 Pts: 241 Pts avec interruption AVK (INR≈1.7) vs 282 sans (INR≈2.2).**

- ④ **Saignements Majeurs : 5% vs 1.2% (p=0.02)**
- ④ **Complications de voie d'abord : 11.3% vs 5% (0.01)**
- ④ **Facteurs prédictifs**

- ✓ Accès Fémoral : OR 9.9 [1.3-75]
- ✓ Utilisation systèmes de fermeture : OR 2.1 [1.1-4]
- ✓ HBPM : OR 2.7 [1.1-6.7]
- ✓ Grand Age



**Safety of percutaneous coronary intervention during uninterrupted oral anticoagulant treatment.**  
**Eur Heart J. 2008 Apr;29(8):1001-10 Karjalainen**

# Conclusion

- **Plus les patients sont fragiles, plus ils bénéficient de l'abord radial**
- Quasiment toutes les interventions coronaires sont faisable par voie radiale avec la même **Efficacité**.
- ...et une meilleure **Sécurité**
- ...si on utilise des catheters de gros diamètre (6 & 7F)
- ..si on préserve la perméabilité **radiale!**
- **Sheathless** & introducteurs parois fines semblent être un « Must Have » pour repousser les limites de l'abord radial!