26-27-28 JANVIER 2022 HIGH TECH MARSEILLE

Traitement percutané

Embolie pulmonaire aigüe

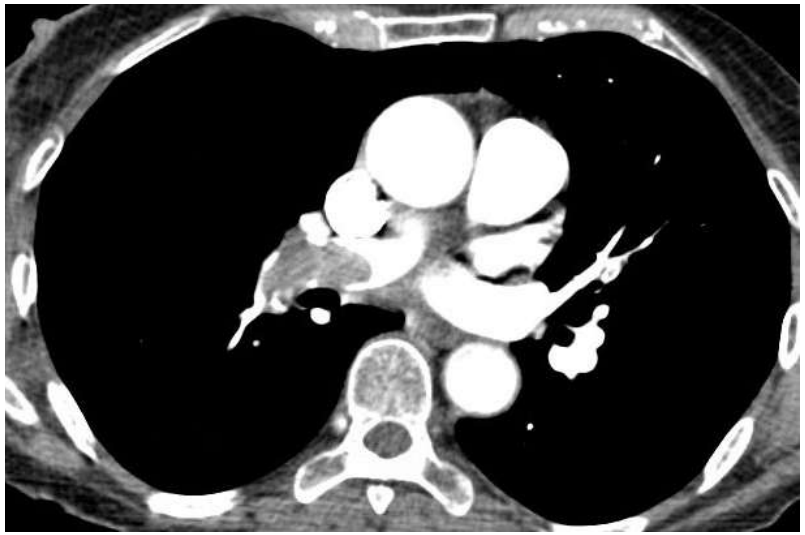
Janvier 2022
Louis-Marie Desroche
Aucun conflit d'intérêt

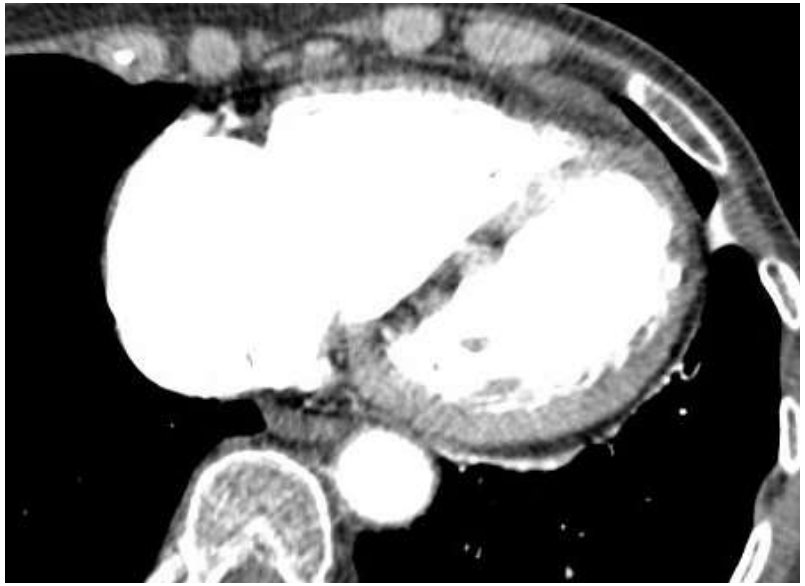
Cardiologie
CHU NORD - LA RÉUNION

CHU CENTRE HOSPITALIER UNIVERSITAIRE LA RÉUNION

Août 2021 - USIC

Mme Fast, 67 ans





18h

- O2 = 4L, Troponine = ⇑
- VD/VG=1,4
- Traitement percutané

20h

- Sevrage O2

8h

- VD/VG = 0,8
- Retour à domicile

Où est le débat ?

30% †

Pesi 0	*Pesi+*	*VD et tropo*	*HMD*
Low	Intermediate-low	Intermediate-high	High

Anticoagulation seule		Anticoagulation seule	Anticoagulation + Thrombolyse
<1% *	**Mortalité J30**	>8% *	
<0,37% **	**HTP post embolique**	13,2% ††	
+/- 0 j *	**Durée de séjour**	6,7 J †††	

- *ESC 2019*

** *Coquoz et al. Eur Respir J 2018*

† *Becattini et al. Eur Respir J. 2016*

†† *Stefano Barco et al. Clin Res Cardiol. 2019*

††† *Nykamp et al J Vasc Surg Venous Lymphat Disord 2015*

Vers 2019

Intermediate-high

+ thrombolyse ?

PEITHO (NEJM 2014)

1006 patients

-54% mortalité+dégradation J7 mais

× 4,8 saignements majeurs

+ chirurgie ?

Keeling (Ann Thorac Surg 2016)

214 patients dont 82% à risque intermédiaire

« Notably, only 11.7% patients died in the hospital. » ……

Vers 2019

Intermediate-high

+ percutané ?

ULTIMA – Circulation
PERFECT – Chest
SEATTLE II - JACC Cardiovasc Interv
Nykamp et al - J Vasc Surg V L D
Bajaj et al. - Int J Cardiol
Tafur et al. - Clin Appl Thromb Hemost
Kaymaz et al Curr Vasc Pharmacol
OPTALYSE PE - JACC CI

Ekos > héparine sur VD
Sécurité et efficacité
Ekos : Sécurité et efficacité
Ekos > HNF sur durée séjour
Sécurité et efficacité
Sécurité et efficacité
Ekos > thrombolyse
Ekos : Sécurité et efficacité

2014 - 2018
➔3667 patients

2019 : recommandations ESC et PERT
Percutané dans l'EP

Pesi 0	*Pesi+*	*VD et tropo*	*HMD*
Low	Intermediate-low	Intermediate-high	High

Que si dégradation sous anticoagulation. Et percutané = chirurgie = **IIa**		Que si échec ou CI thrombolyse Chirurgie > percutané I IIa
Non	**Oui en 1ère intention**	Si échec ou CI thrombolyse Percutané > chirurgie

Konstantinides et al, European Heart Journal, 2019
Rivera-Lebron et al., Clinical and Applied Thrombosis/Hemostasis, 2019

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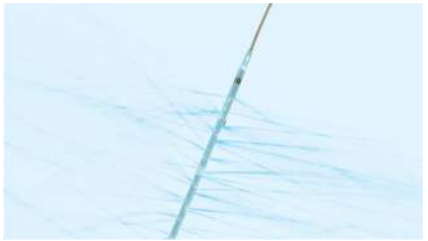
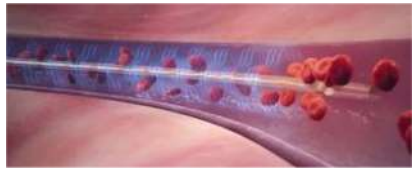
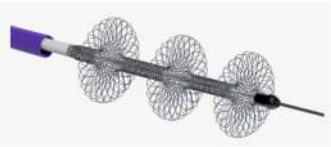
Les différents systèmes



Unifuse

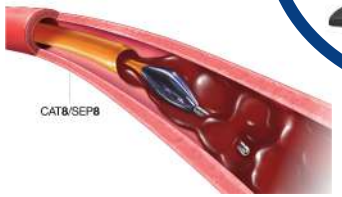


Ekos



Flowtriever

Pigtail

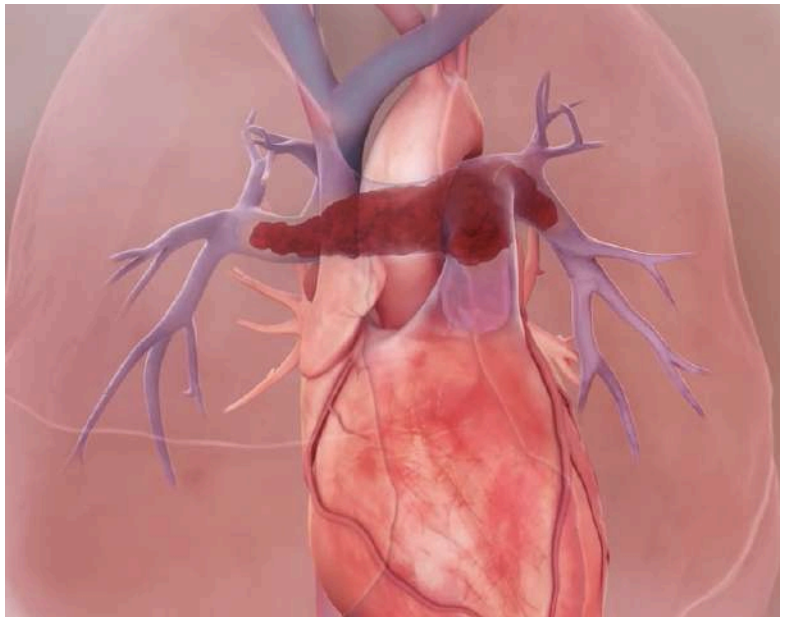


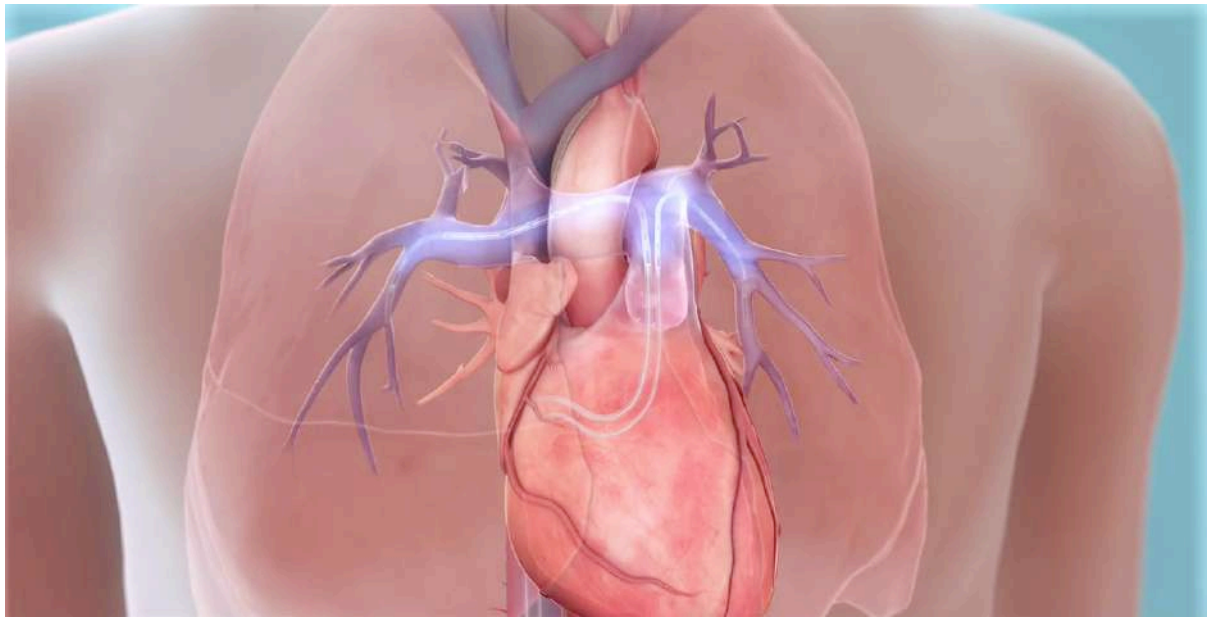
Indigo

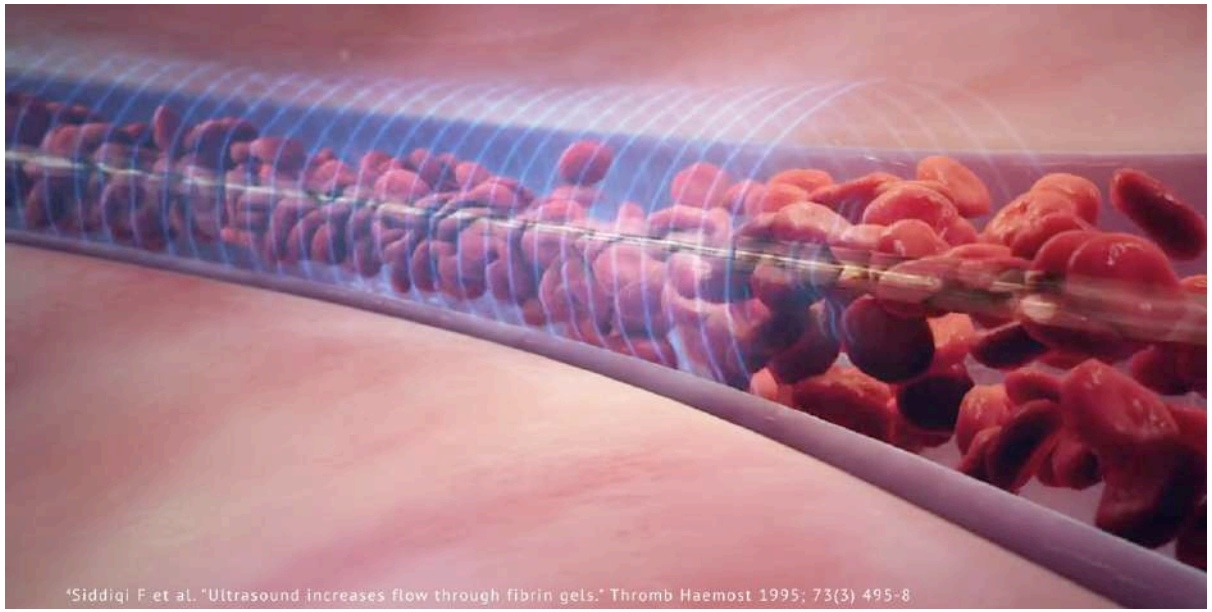
Angiojet

Ekos

Boston scientific





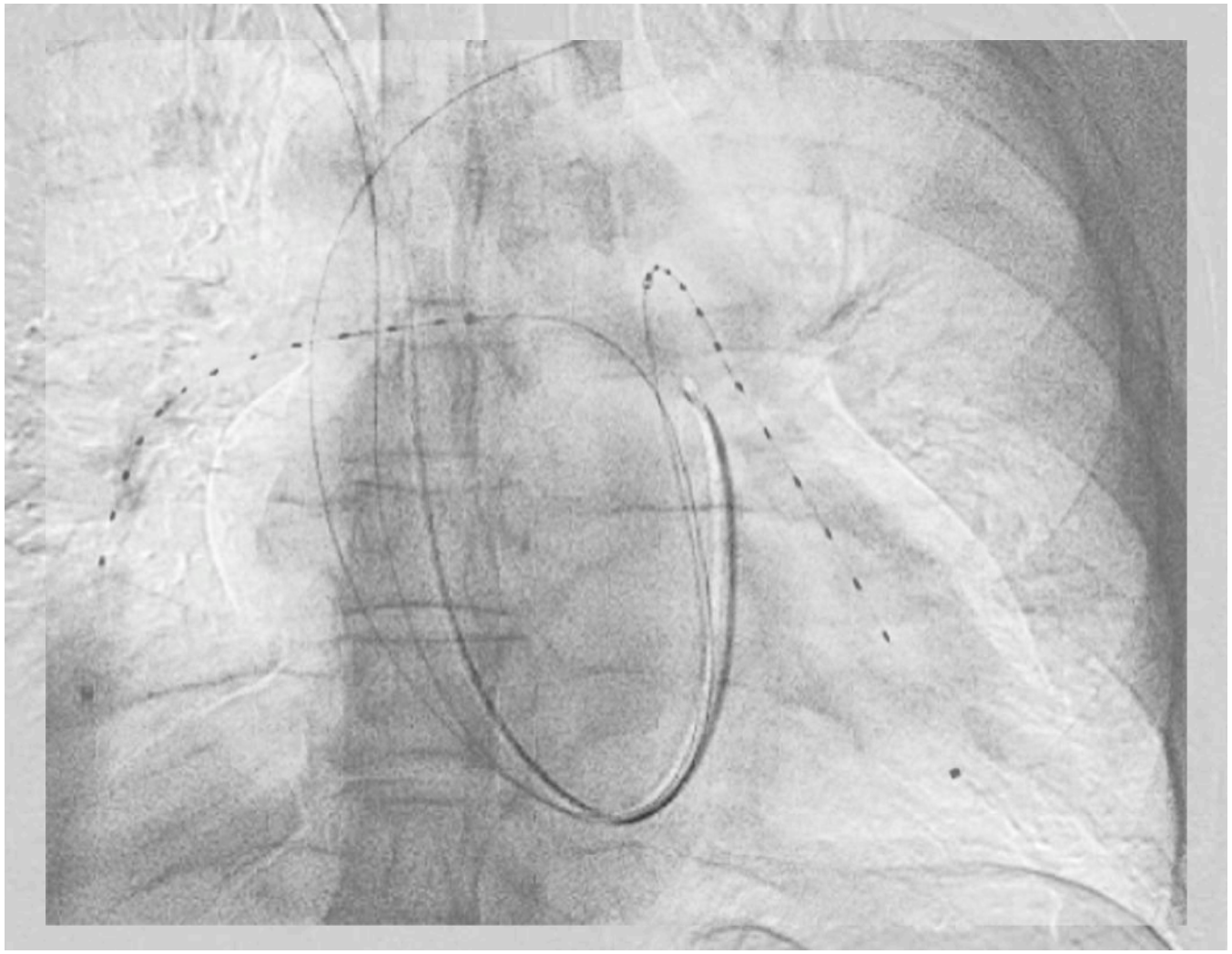


Les grelots du 24/12

Homme 49 ans, douleurs

O2 = 4L - Tropo 147ng/l

			À H12
PAPS	45	→	**35**
VD/VG	1,2	→	**0,7**
TAPSE	16	→	**23**
S'	8	→	**11,7**



Expérience CHU de La Réunion

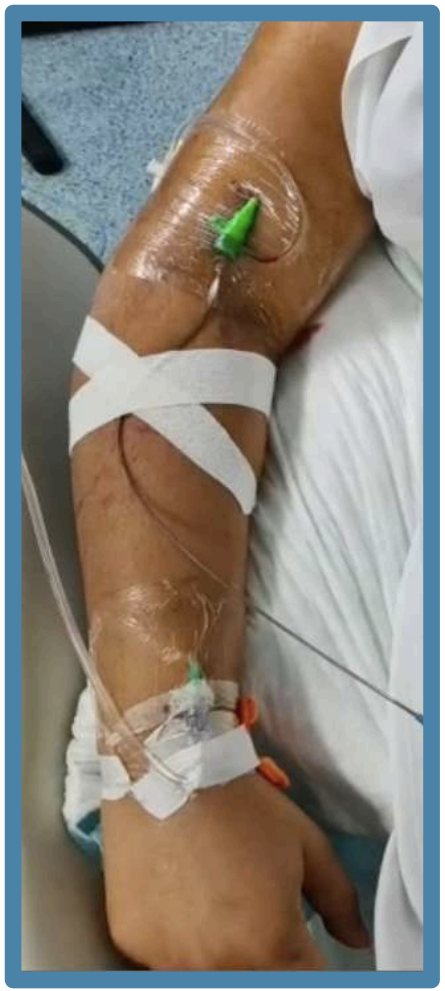
7 derniers mois

Voie fémorale :	1/16
Voie céphalique :	**15/16**
Saignmt majeur :	1 (fémoral)
Décès :	0

8 patients :

1. EP proximales
2. bilatérales
3. Tropo +
4. VD dilaté

		À H12
PAPS	43 →	**29**
VD/VG	**1,4** →	**0,9**
TAPSE	15 →	**18**
S'	9 →	**12**
SIV paradox	**8/8** →	**1/8**



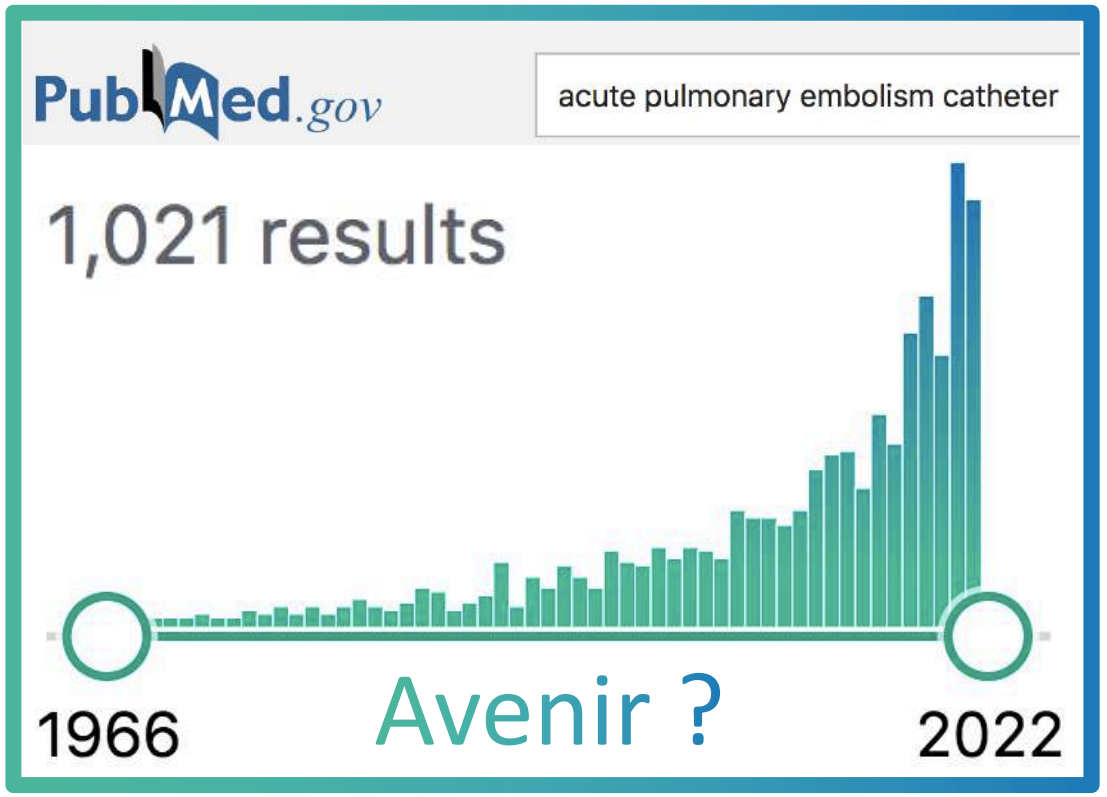
Registre Dr C. Sacri, Abord : JB Pause

Messages clés

01 Simplicité technique ≈ KT droit

02 Preuves sur :

- ⇓ taille VD & thrombus
- Bonne sécurité
- ⇓ durée séjour



03 Questions restantes:

- ⇓ mortalité, ⇓ HTP post embolique ? ➔ *Hi Petho*
- Remboursement en France ?

Merci

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Pour les questions/réponses

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Ekos

Boston scientific

2014

ULTIMA[1]

PROSPECTIVE, RANDOMIZED CONTROLLED STUDY VS. STANDARD OF CARE (ANTICOAGULATION)

PATIENTS:
59 patients with acute intermediate-risk PE

CONCLUSION:

EKOS was superior to anticoagulation alone without an increase in bleeding complications. ULTIMA was the first and remains the only level 1, head-to-head trial for the interventional treatment of PE.

2015

SEATTLE II[2]

PROSPECTIVE, MULTI-CENTER, SINGLE-ARMED TRIAL

PATIENTS:

150 patients with acute submassive and massive PE

CONCLUSION:

EKOS continued to show efficacy and safety in reducing RV dilation in patients with acute submassive and massive PE. SEATTLE II was the second pivotal trial that led to EKOS PE indication and remains the largest published prospective trial in the interventional treatment of PE.

2018

OPTALYSE[3]

PROSPECTIVE, MULTI-CENTER, PARALLEL-GROUP TRIAL

PATIENTS:
101 patients with acute intermediate-risk PE

CONCLUSION:

Low dose/short duration EKOS protocols showed the same efficacy as previous studies and long-term data showed sustained RV re-modeling out to one year. OPTALYSE provides the only long-term data for the interventional treatment of PE to date.

2021

KNOCOUT[4]

REGISTRY

PATIENTS:
1,000 retrospective, 500 prospective patients with acute intermediate-risk PE

OBJECTIVE:

To understand OPTALYSE protocol adoption and to provide additional safety, efficacy, and long-term data to the EKOS data set.

2024

HI-PEITHO[5]

PROSPECTIVE, MULTI-CENTER, RANDOMIZED CONTROLLED TRIAL

PATIENTS:
406-544 patients with acute intermediate-high risk PE

OBJECTIVE:

To compare the outcomes of EKOS, plus anticoagulation versus anticoagulation alone for the treatment of acute intermediate-high risk PE.

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Ekos

Boston scientific

ULTIMA TRIAL

First (and only) head-to-head prospective, randomized-controlled trial that showed EKOS is more effective than anticoagulation alone and just as safe.

CLINICAL SIGNIFICANCE

THE ONLY LEVEL 1 DATA
FOR INTERVENTIONAL TREATMENT OF PE

23% REDUCTION (P<0.001) IN RV/LV RATIO IN 24 HOURS

THE FIRST HEAD-TO-HEAD
PROSPECTIVE, RANDOMIZED-CONTROLLED TRIAL AGAINST STANDARD OF CARE

0% MAJOR BLEED **0** ICH

OVERVIEW

+ Prospective, Multi-Center, Randomized, Controlled Trial
+ 59 patients with acute intermediate-risk PE
+ 8 centers in Germany and Switzerland
+ Infusion time: 15 hours. Total dose: 20 mg
+ 23% reduction (p<0.001) in RV/LV ratio from baseline vs. 2.5% (p=.031) in Heparin group
+ No major bleeds, deaths or recurrent VTE at 90 days
+ 0 ICH

CONCLUSION:

ULTIMA showed that a fixed-dose EKOS regimen was superior to anticoagulation alone in improving right ventricular dysfunction at 24 hours without an increase in bleeding complications.

SEATTLE II TRIAL

Patients treated with EKOS showed significant RV/LV ratio, thrombus burden and systolic PA pressure reductions.

CLINICAL SIGNIFICANCE

25% REDUCTION (P<0.0001) IN RV/LV RATIO IN 48 HOURS

0
ICH
SEVERE BLEED = 0.67%
MODERATE BLEED = 9.3%

STILL THE LARGEST
PROSPECTIVE DEVICE TRIAL IN PE

OVERVIEW

+ Prospective, Multi-Center, Single-Armed Trial
+ 150 patients with acute submassive (n=119) and massive (n=31) PE
+ 22 centers in U.S.
+ Infusion time: 12 hours. Total dose: 24 mg
+ 25% reduction (p<0.0001) in RV/LV ratio 48 hrs. from baseline
+ 6.7 reduction (p<0.0001) in Thrombus Burden 48 hrs. from baseline
+ 13.9 mm Hg reduction (p<0.0001) in PA systolic pressure 48 hrs. from baseline
+ GUSTO Severe/Life-Threatening Bleed: 0.67%; GUSTO Moderate Bleed: 9.3%
+ 0 ICH
+ First EKOS protocol established

CONCLUSION:

SEATTLE II, the largest trial to-date, confirmed that EKOS continued to show safety and efficacy and provided a proven procedural protocol for the interventional treatment of PE.

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2019

Set-up of multidisciplinary teams for management of high-risk and selected cases of intermediate-risk PE should be considered, depending on the resources and expertise available in each hospital.	IIa

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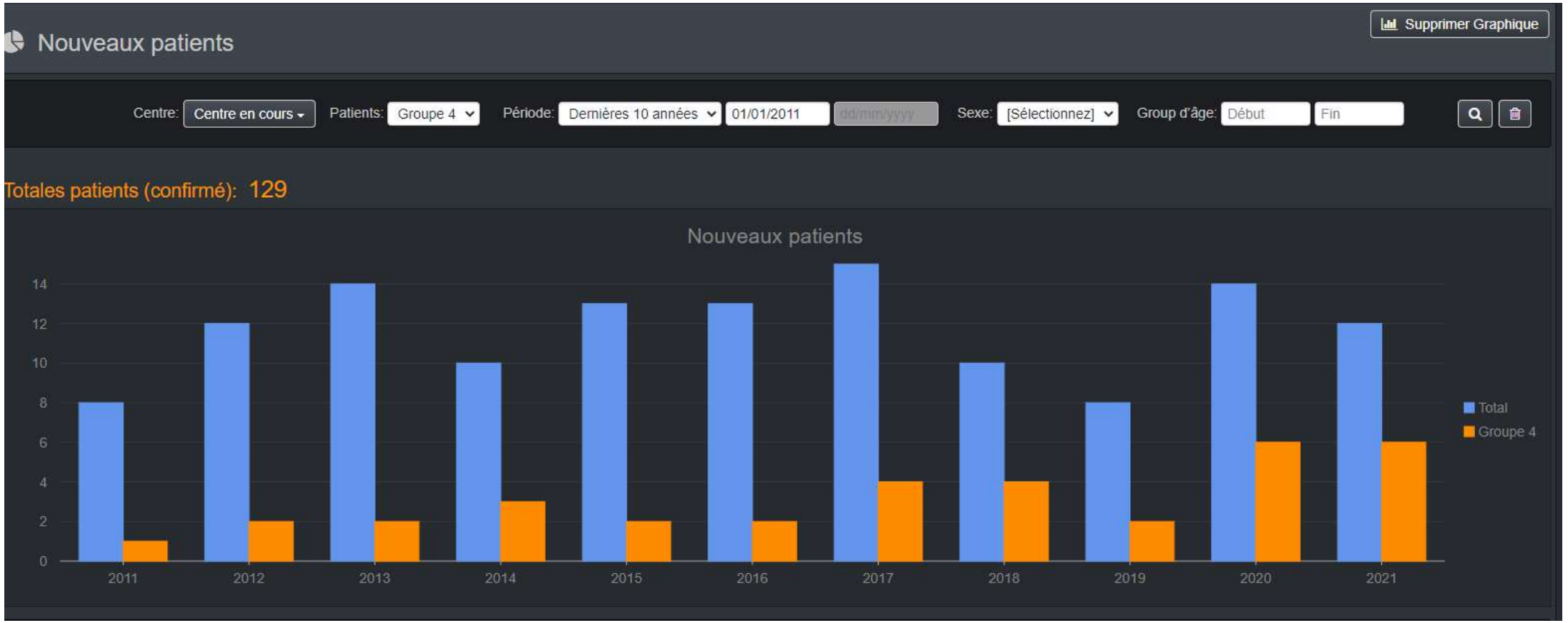
Développement filière HTP à La Réunion



Courtesy of Dr Poubeau

Développement filière HTP à La Réunion

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