



11-13
SEPT.
2024

LILLE
GRAND PALAIS

CONGRÈS FRANÇAIS d'HÉMOSTASE



Hémostase + soins critiques

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Liens d'intérêt

1 – Patents / Stock Option	None
2 – Consulting fees	I-SEP, Aguetant
3 – Payment or honoraria for lectures, presentations, speakers	Pfizer, Aguetant, I-SEP, Viatrix
4 – Support for attending meetings and/or travel	AbbVie, I-SEP, LFB
5 – Principal Investigator (PI) of clinical trial	I-SEP
6 – Co-investigator of clinical trial	Aucun

Knowledge gaps

**Plaidoyer pour une interaction forte
entre biologistes et anesthésistes/réanimateurs**

Clinique - Recherche - Pédagogie

Le binôme
anesthésiste+biologiste
c'est facile !



Mais exigeant !





“Soit vous en dites trop,
soit vous en dites trop peu !”



CENTRE CHIRURGICAL ET INTERVENTIONNEL

NOUVEAU CHU RENNES

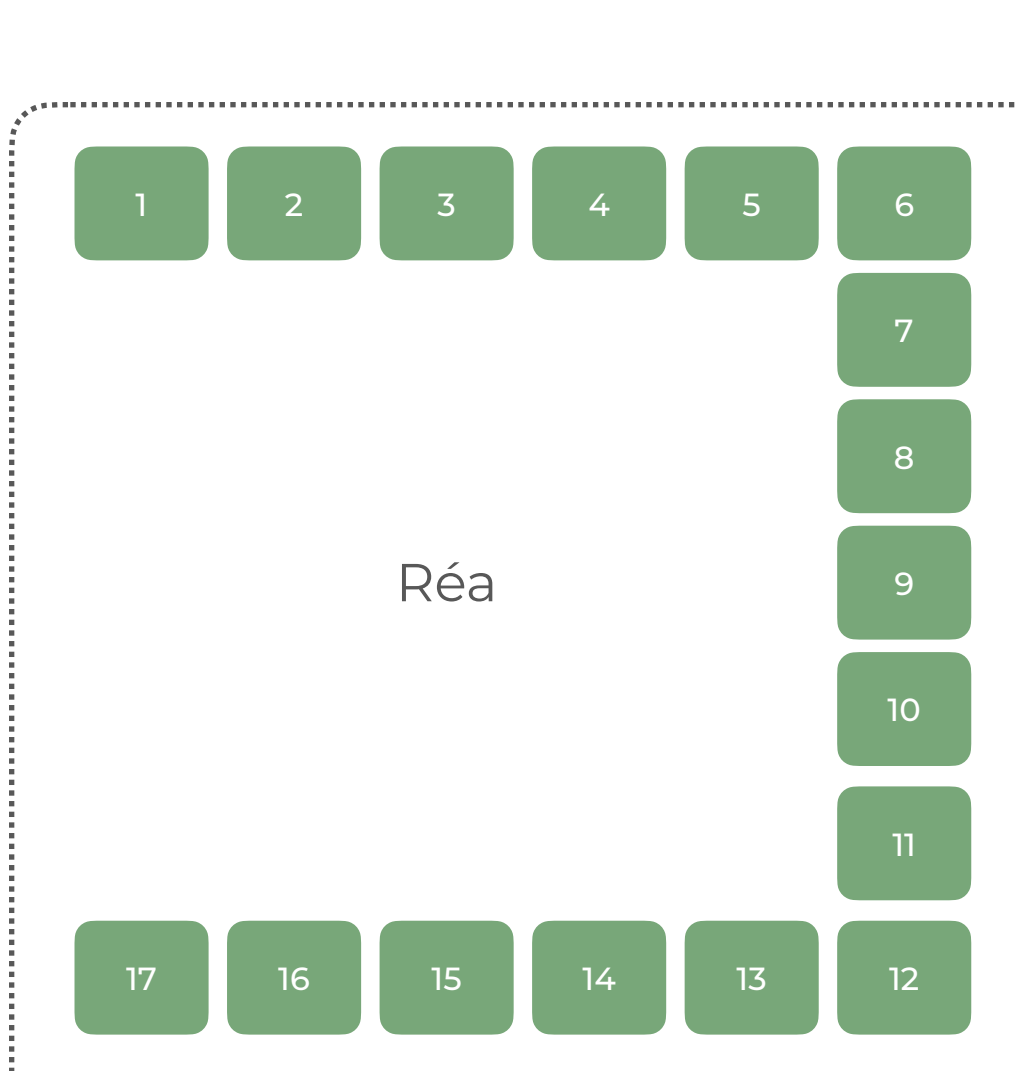
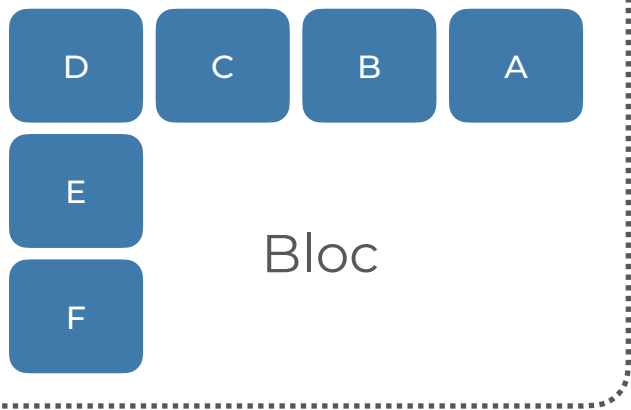


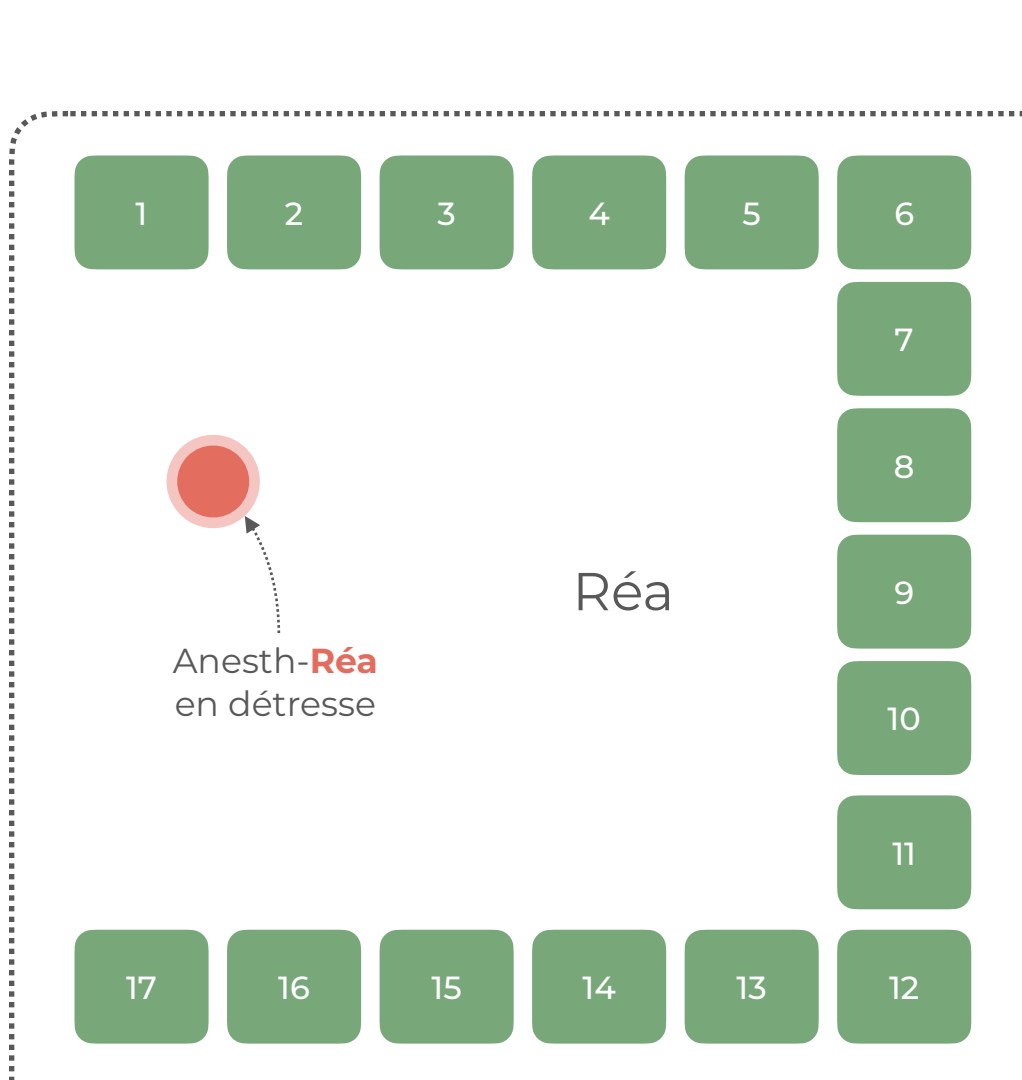
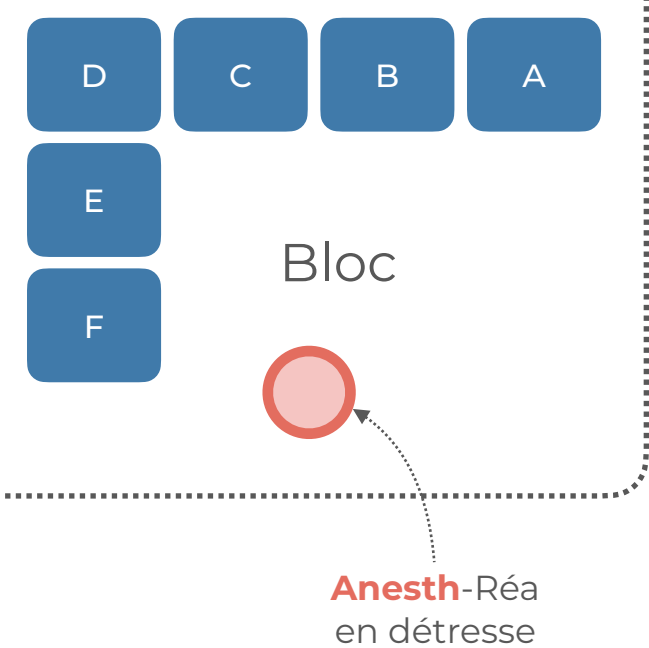
Bloc et Réa Cardiothoracique

Réa CTCV 17 lits

1200 CEC/an

ECMO - Assistance - Greffe

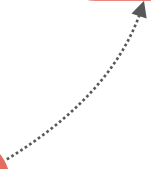




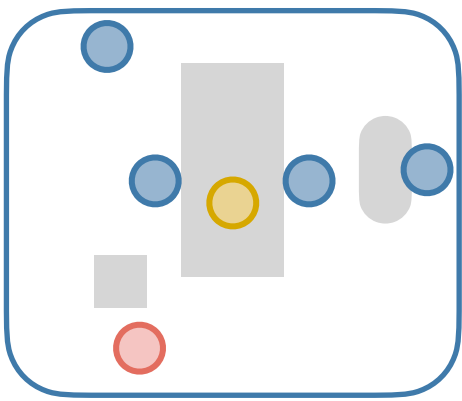
D C B A

E

F



Chirurgie cardiaque sous CEC



Quelle HNF ?

ACT ? Lequel ? quelle cible ?

Bolus ? IVSE ?

Résistance ? Réponse altérée ?

Rebond: existe ? diagnostic ? impact ?

HMS vs ACT

Mesurer AT ? Supplémenter ?

TXA : oui

Fg prophylactique : non

2017 EACTS/EACTA Guidelines on patient blood management for adult cardiac surgery

The Task Force on Patient Blood Management for Adult Cardiac Surgery of the European Association for Cardio-Thoracic Surgery (EACTS) and the European Association of Cardiothoracic Anaesthesiology (EACTA)

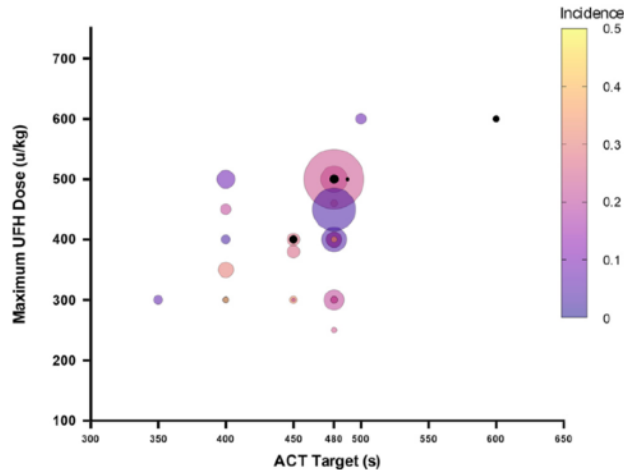
Recommendations	Class ^a	Level ^b	Ref ^c
Heparin level-guided heparin management should be considered over ACT-guided heparin management to reduce bleeding.	IIa	B	150–152
Heparin level-guided protamine dosing may be considered to reduce bleeding and transfusions.	IIb	B	153
Protamine should be administered in a protamine-to-heparin dosing ratio ^d < 1:1 to reduce bleeding.	IIa	B	154
AT supplementation is indicated in patients with AT deficiency to improve heparin sensitivity.	I	B	155, 156
AT supplementation is not recommended to reduce bleeding following CPB.	III	C	

2019 EACTS/EACTA/EBCP guidelines on cardiopulmonary bypass in adult cardiac surgery

Authors/Task Force Members: Alexander Wahba^{a,b,*} (Chairperson) (Norway), Milan Milojevic^{c,d,*} (Serbia, Netherlands), Christa Boer  ^e (Netherlands), Filip M.J.J. De Somer  ^f (Belgium), Tomas Gudbjartsson^g (Iceland), Jenny van den Goor  ^h (Netherlands), Timothy J. Jones  ⁱ (UK), Vladimir Lomivorotov^j (Russia), Frank Merkle  ^k (Germany), Marco Ranucci  ^l (Italy), Gudrun Kunst^{m,*} (Chairperson) (UK) and Luc Puis  ^{n,*} (Chairperson) (Belgium)

Recommendations	Class ^a	Level ^b
Heparin management		
ACT above 480 s during CPB should be considered in CPB with uncoated equipment and cardiomy suction. The required target ACT is dependent on the type of equipment used.	IIa	C
Individualized heparin and protamine management should be considered to reduce postoperative coagulation abnormalities and bleeding complications in cardiac surgery with CPB.	IIa	B
In the absence of individual heparin dosing tools, it is recommended that ACT tests be performed at regular intervals based on institutional protocols, and heparin doses have to be given accordingly.	I	C
Protamine management		
Protamine overdosing should be avoided in order to reduce postoperative coagulation abnormalities and bleeding complications in cardiac surgery with CPB.	IIa	B

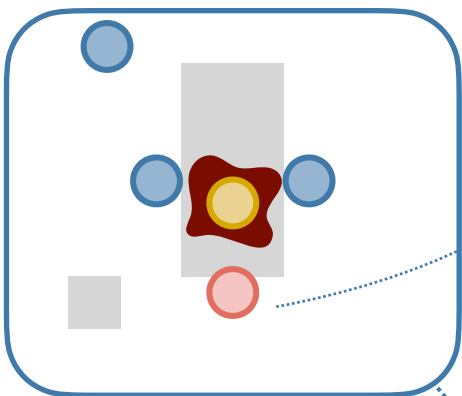
Finding a common definition of heparin resistance in adult cardiac surgery: communication from the ISTH SSC subcommittee on perioperative and critical care thrombosis and hemostasis



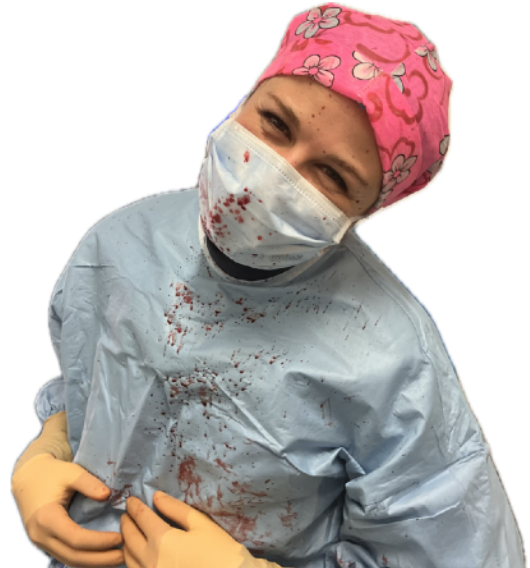
Our findings suggest that the most extensively reported ACT target for CPB is 480 seconds or higher

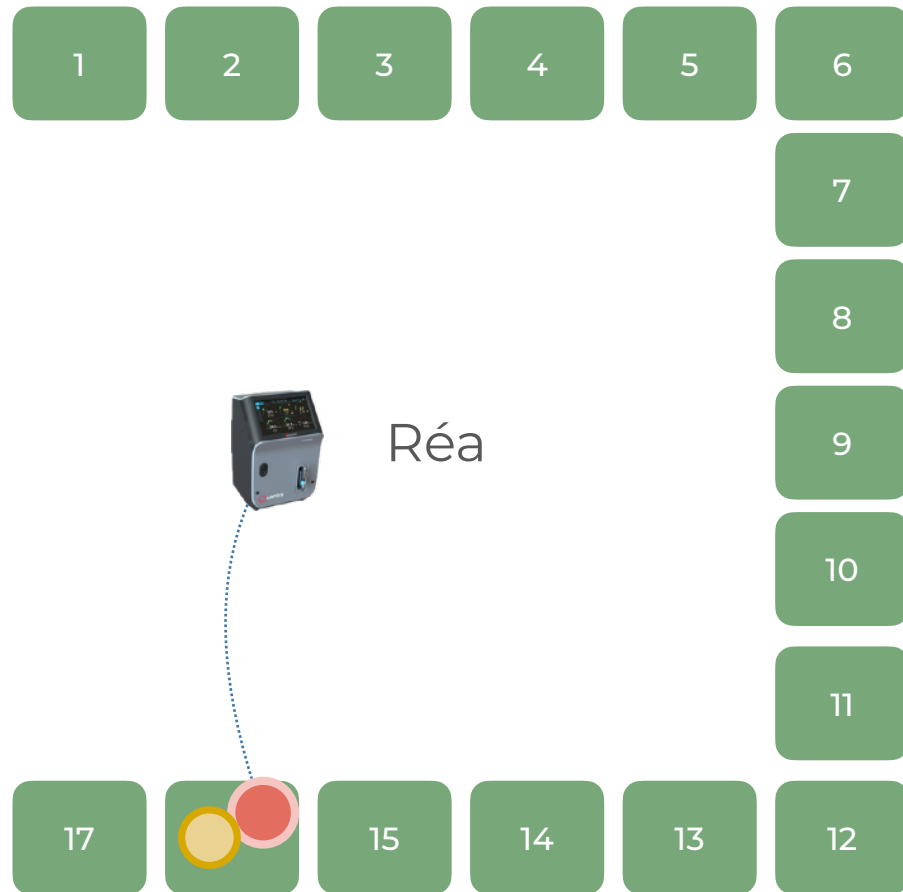
Although most publications define heparin resistance as a failure to achieve this target after a weight-based dose of either 400 U/kg or 500 U/kg of heparin, a standardized definition would be useful to guide future clinical trials and help improve clinical management

We propose the inability to obtain an ACT target for CPB of 480 seconds or more after 500 U/kg as a standardized definition for heparin resistance in this setting



La CEC est posée
l'HNF antagonisée par protamine (HMS)
Et ca saigne....





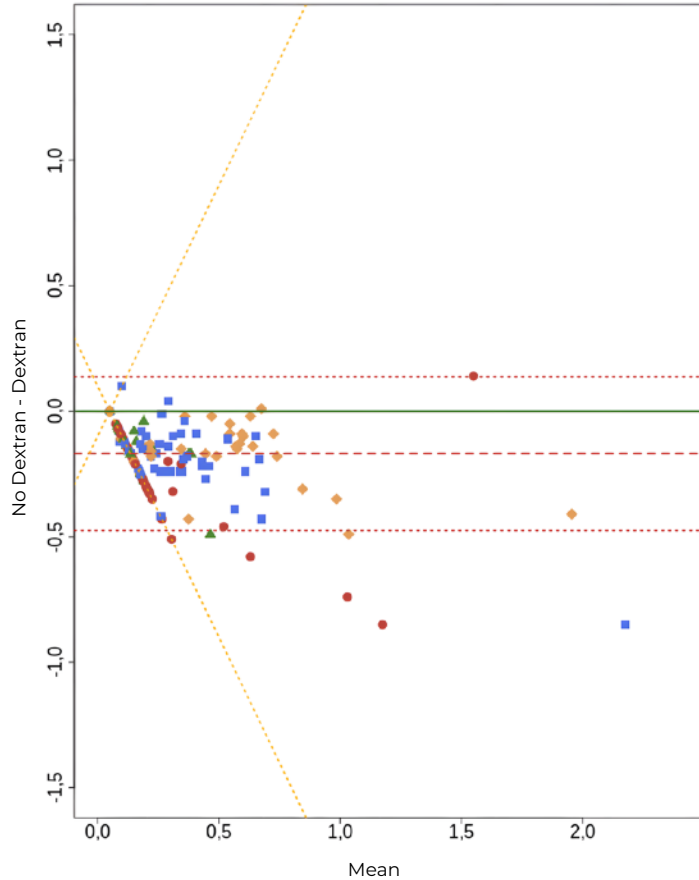
Saignement post-opératoire précoce en chirurgie cardiaque

Plaquettes ? quel seuil ?
Facteurs de coagulation ? quel seuil ?
Monitoring HNF post-prota ? quel antiXa ?

Hémostase conventionnelle ou TVE ?
Fibrinogène ? quel seuil ?
PFC ou CCP ?
Desmopressine ? aFVII ?

Utiliser des algorithmes: oui
Concentrés Fg \approx cryoprécipités
FXIII : non

AntiXa : avec ou sans dextran ?



Réa non-post CEC

Sans Dextran
0.22 IU/mL (<LOQ : 28%)

Avec Dextran
0.31 IU/mL (<LOQ: 7%)

+53%
CI 95%: 31-80

Post-CEC (et protamine)

Sans Dextran
0.05 IU/mL (<LOQ: 77%)

Avec Dextran
0.32 IU/mL (<LOQ: 6%)

+296%
CI 95%: 258-338



Remplacement valvulaire et PACx2 à J0
FA préopératoire sous eliquis
SCA inférieur post-opératoire
Stent x3 CD
Mis par le coronarographe sous
cangrelor

Gestion des AAP en post-opératoire

P2Y12 oral ou IV ? Quand ?
Sous cangrelor : dose fixe ou adaptée ?
Quel test fonctionnel plaquettaire ?
Test délocalisé ? 🤖



6

7

8

Gestion de l'hémostase sous ECMO !



Anticoagulation ? Intensité ? Par quoi ?
Monitoring ? Quel anti-Xa ?
Réponse altérée à l'HNF ? AT ?

Saignement sous ECMO: 0

Rien !

6

7

8

Anticoagulation in adult patients supported with extracorporeal membrane oxygenation: guidance from the Scientific and Standardization Committees on Perioperative and Critical Care Haemostasis and Thrombosis of the International Society on Thrombosis and Haemostasis

« We recommend the use of intravenous unfractionated heparin for anticoagulation during ECMO support »

« We suggest against the routine use of no anticoagulation for patients on ECMO »

AVIS D'EXPERT

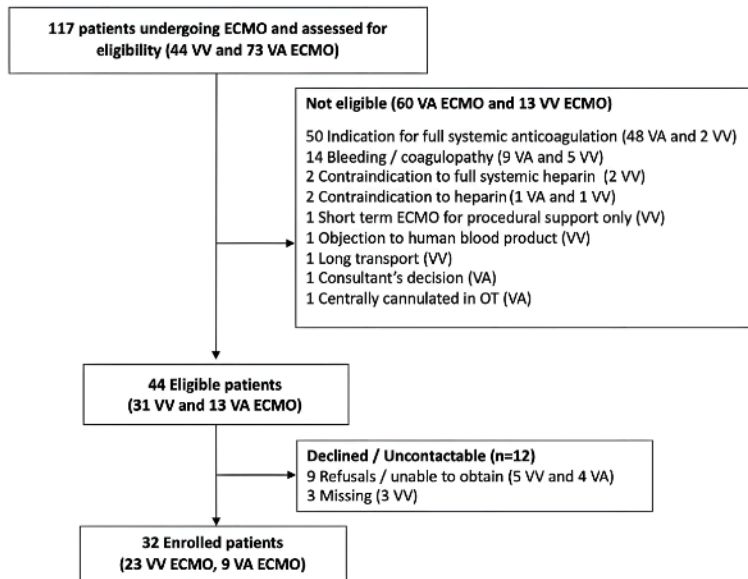
niveau de preuve faible

HNF

anti-Xa 0.3-0.5 IU/mL



Low-Dose Versus Therapeutic Anticoagulation in Patients on Extracorporeal Membrane Oxygenation: A Pilot Randomized Trial



Pilot RCT

Low dose UFH : aPTT <45s

Therapeutic UFH : aPTT 50-70s

	Low dose n=16	Therapeutic n=16	P-value
Bleeding	7 (43.8)	7 (43.8)	> 0.999
Patient thrombosis	3 (19)	4 (25)	0.67
Circuit thrombosis	4 (25%)	2 (13%)	0.37

Hémostase + soins critiques

Manque majeur de données robustes sur la gestion des anti-thrombotiques
et la prise en charge des saignements

Du travail pour les années à venir !
Recherche clinique et translationnelle
Protocolisation // Encadrement EBMD
Enseignement réciproque

GIHP



www.gihp.org

