



Quel verrou de cathéter en 2025 ?



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Aix en Provence, 18 juin 2025

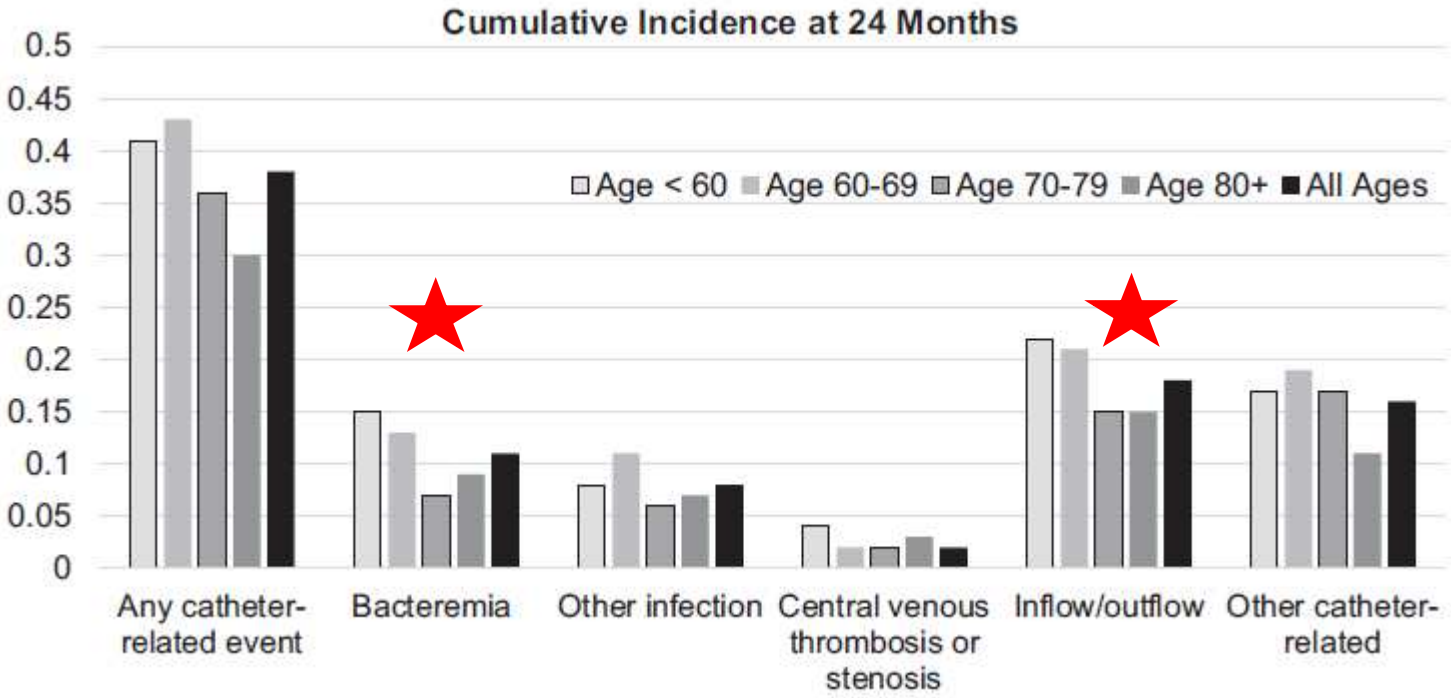
Les cathéters en France 2022



9562 (23,5 %)

Complications du cathéter

Etude observationnelle multicentrique canadienne – 1041 patients



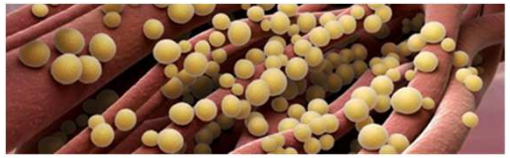
Prévalence complication: 80%

Poinen K. et al. Am J Kidney Dis 2019; 73 (4): 467 - 475

Définition du verrou

Solution instillée dans chaque lumière du cathéter après chaque séance de dialyse
Dispositif médical de classe III

Risque **infectieux**



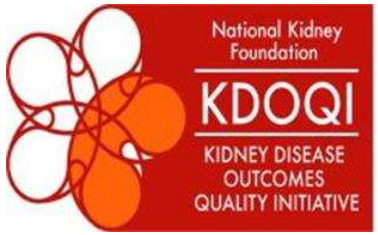
Risque de **dysfonction**



Dysfonction de cathéter

2019

Guideline 21.1



Impossibilité de maintenir le Q_b requis pour obtenir une dose de dialyse adéquate sans allonger la durée de la séance

KDOQI 2019. Am J Kidney Dis 2020; 75 (Suppl 2): S 110 – S 130

Dysfonction de cathéter

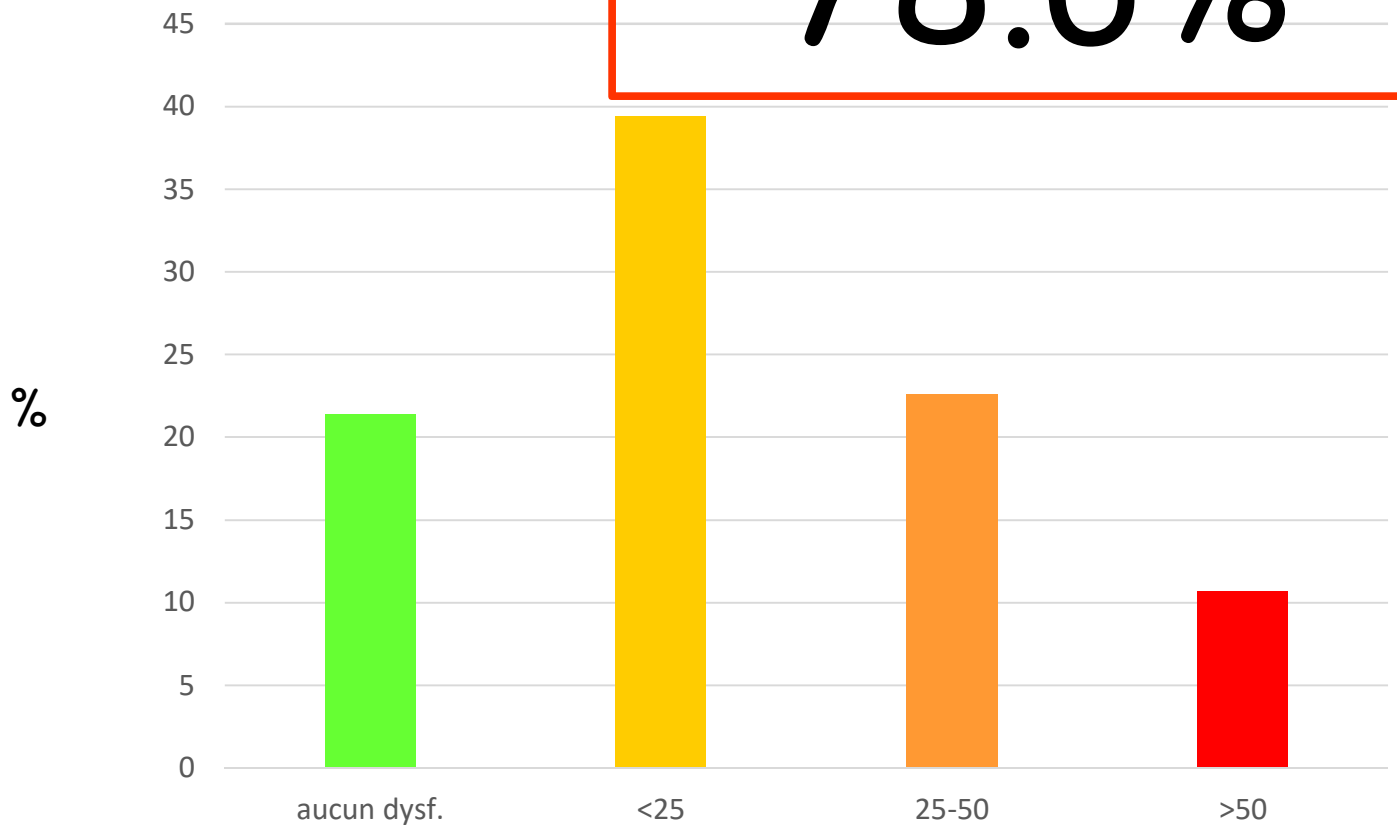
Définition Rouennaise

Impossibilité de maintenir le Q_b habituel – 50 mL/min

Fréquence de la dysfonction

28 cathéters/prescription de fibrinolytiques
280 séances

78.6%



Fréquence de la dysfonction

11.1%

3 cathéters sur 27 n'atteignent pas la dose de dialyse prescrite
Débit moyen : **365 mL/min**
Kt moyen 52 litres **Kt/V 2,00**

Les solutions verrous



HNF



Citrate



Taurolock
(Taurolidine
+ citrate 4%)



Tauro-Hep



Tauro-urokinase

Les fibrinolytiques

Urokinase



Alteplase



Coûts des solutions verrous

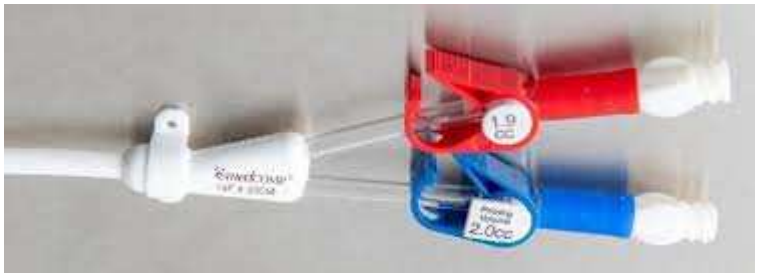
- Héparine : 1,70 euros flacon 5000 U/ml, 5 ml
- Citrasate 30% : 1,29 euros les 5 mL
- Tauro-UK : 32 euros
- Therasolv 100 000 U : 86 euros
- Alteplase : 57 euros

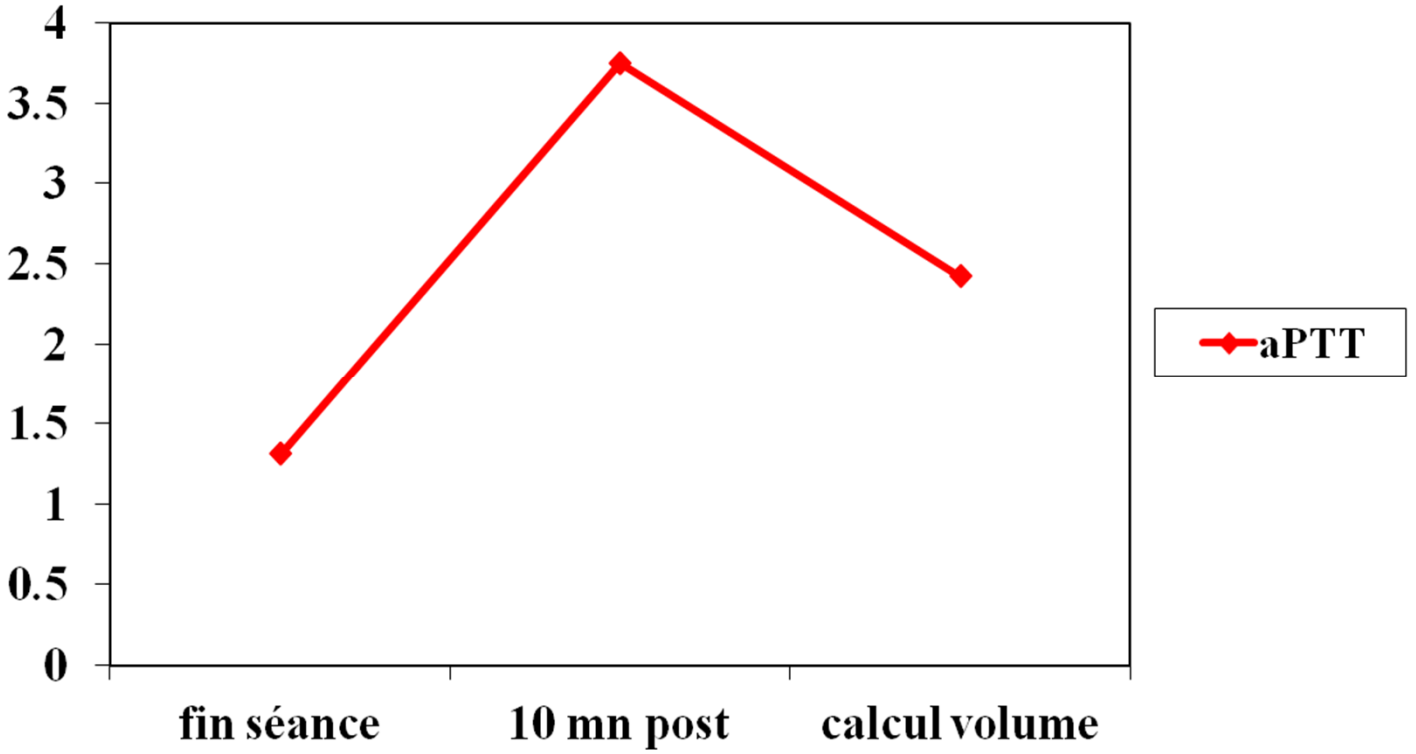
	n	Coût 2024
Citrasate 30%	3520	4562
Tauro-UK	1295	41747
Therasolv	104	8985
Alteplase	38	2178

57472 euros

Verrou Héparine ou autres

+++Volume des branches+++



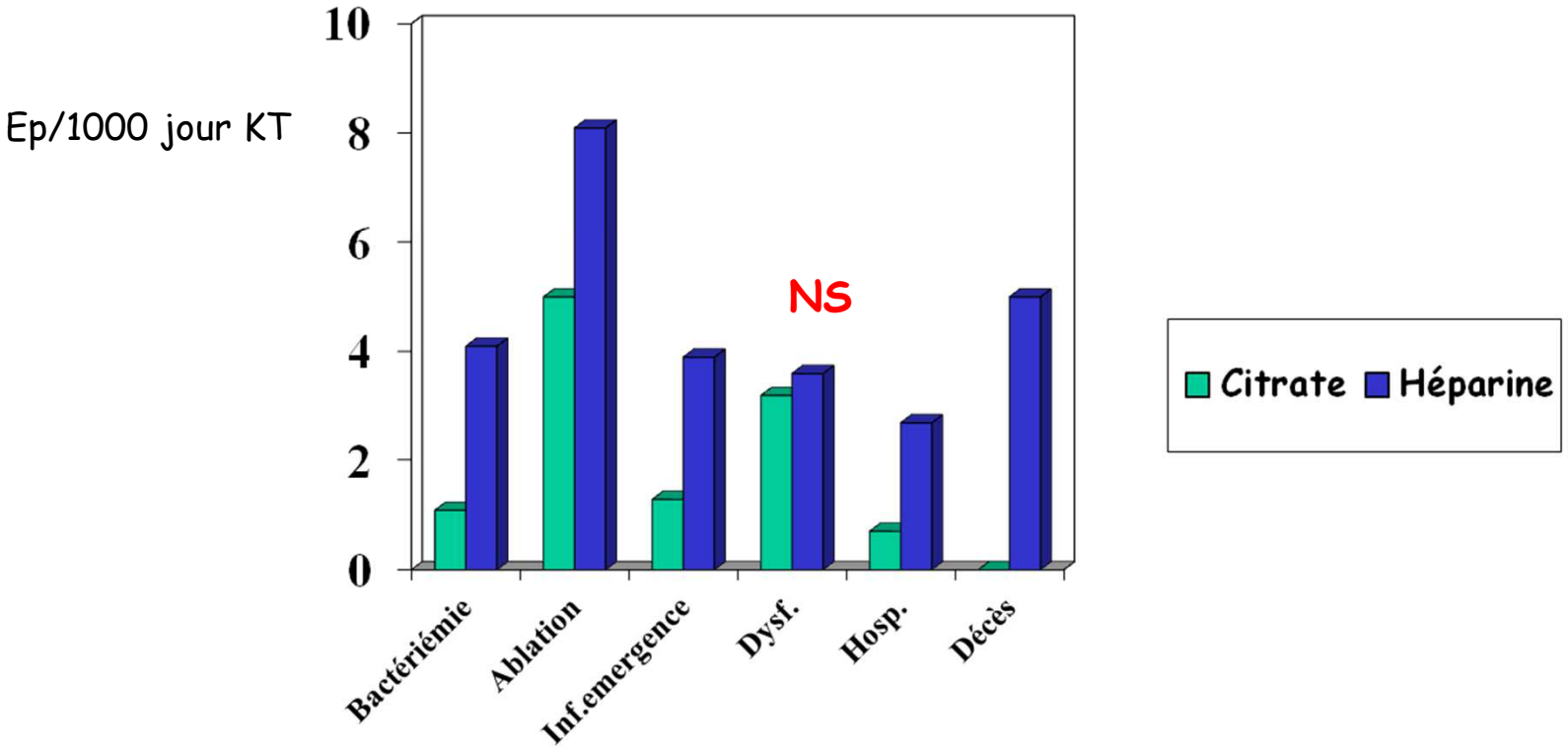


Karaaslan et al. Nephrol Dial Transplant 2001;16:2072-2074

La dysfonction

Citrate 30% vs héparine 5000 U/mL

RCT Avril 2001/Sept.2002
148 citrate / 143 Héparine



Weimer et al. J Am Soc Nephrol 2005;16:2769-2777

Citrate 5% vs Citrate 10%

RCT
28 Cathéters tunnellisés cross over/3 mois

	Citrate 5%	Citrate 10%	p
Présence de caillots	12,5%	9,5%	0,04
Dysfonction	16	14	NS

Meus et al. Blood Purif 2005;23(2):101-105

Hép 5000 U vs Hep 2500

RCT
75 Cathéters tunnellisés

	Hep5000	Hep2500	p
Présence de caillots	aucun	aucun	NS

Hryszko et al. Int Urol Nephrol 2013; 45(3):825-829

Taurolock vs Tauro-Hep vs Hep 5000

RCT
174 Cathéters tunnellisés







	Taurolock	Tauro-Hep	Hep 5000
Survie cathéters	=	=	=
Urokinase + (n)	106	34	34

Salomon et al. Am J Kidney Dis 2010; 55(6):1060-1066

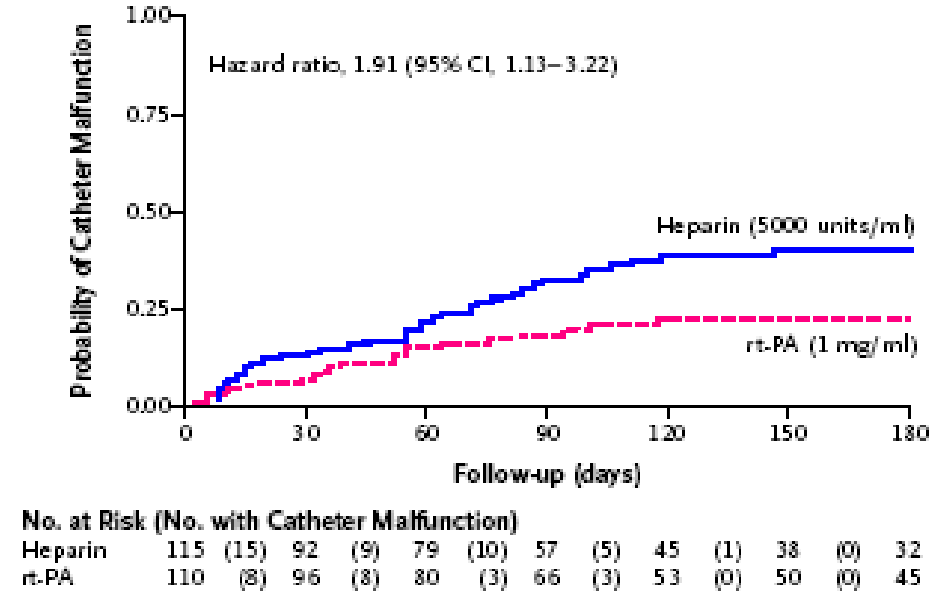
Les fibrinolytiques

Étude PreCLOT

RCT

225 cathéters/6 mois

Lundi	Mercredi	Vendredi
Héparine	Héparine	Héparine
Héparine	Alteplase	Héparine



35%

20%

HR 1.91

Hemmelgarn et al. N Engl J Med 2011 ; 364(4) :303-312

Valves TEGO vs Citrate 46,7%



RCT
66 cathéters/6 mois

	Tego	Citrate 46,7%	p
Dysfonction	48%	55%	NS
Urokinase+ (n)	14	9	NS

Bonkain et al. Am J Kidney Dis 2013; 61(3) : 459-465



Intraluminal Agents to Prevent CVC Dysfunction

21.4 KDOQI considers it reasonable that the choice to use citrate or heparin as a CVC locking solution be based on the clinician's discretion and best clinical judgment, as there is inadequate evidence to demonstrate a difference in CVC survival or complications between these locking solutions. (*Expert Opinion*)

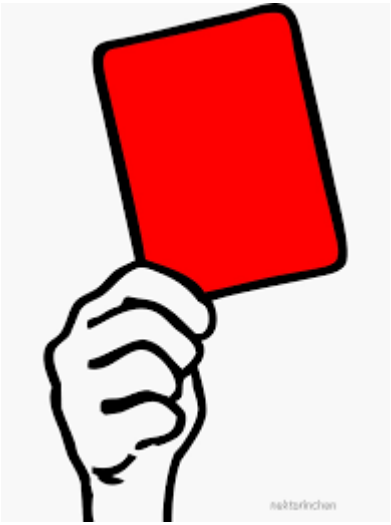
21.5 KDOQI suggests the use of low-concentration citrate (<5%) CVC locking solution, if feasible, to help prevent CRBSI and CVC dysfunction. (*Conditional Recommendation, Low Quality of Evidence*)

21.6 KDOQI suggests that TPA may be prophylactically used as a CVC locking solution once per week to help reduce CVC dysfunction. (*Conditional Recommendation, Low Quality of Evidence*)

21.7 There is inadequate evidence for KDOQI to make a recommendation on the comparative use of the following CVC locking agents for CVC dysfunction or infection prophylaxis: tinzaparin versus unfractionated heparin, taurolidine/citrate versus heparin with or without gentamicin, neutral valve connector (Tego [ICU Medical]) versus citrate (46.7%) locking solution.

L'infection

Mise en culture des verrous



Statement: Surveillance of CVC Colonization and Preemptive CRBSI Management

24.2 There is inadequate evidence for KDOQI to support routine CVC surveillance cultures for colonization and subsequent pre-emptive antibiotic lock installation if culture is positive.

Recommandations

24.3 KDOQI suggests that the selective use of specific prophylactic antibiotic locks can be considered in patients in need of long-term CVC who are at high risk of CRSBI (eg, multiple prior CRSBI), especially in facilities with high rates of CRBSI (eg, >3.5/1,000 days). *(Conditional Recommendation, Low-Moderate Level of Evidence).*

24.4 KDOQI suggests that the selective use of specific prophylactic antimicrobial locks can be considered in patients in need of long-term CVC who are at high risk of CRSBI, especially in facilities with high rates of CRBSI (eg, >3.5/1,000 days). *(Conditional Recommendation, Low-Moderate Quality of Evidence)*

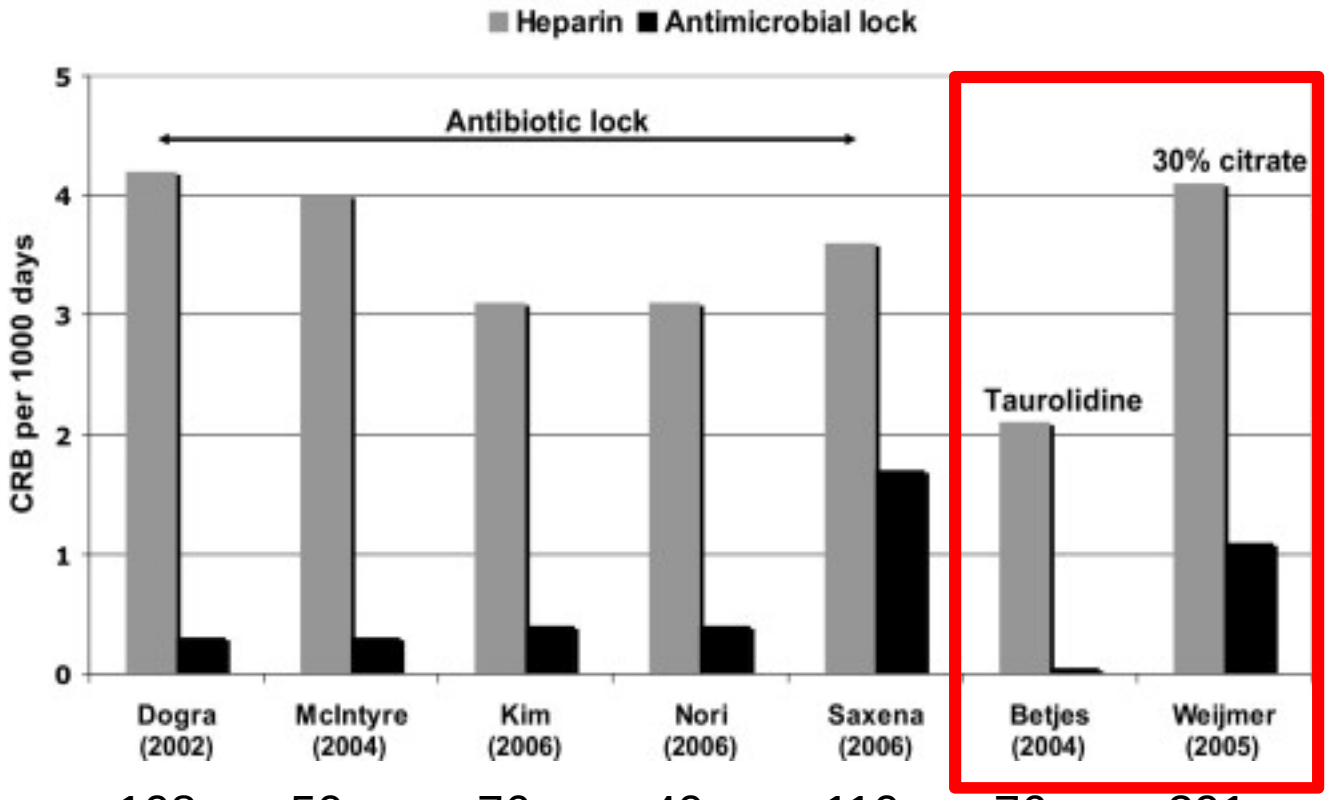
24.5 KDOQI suggests that the selective use of once weekly prophylactic CVC locking with thrombolytic agent (recombinant TPA) can be considered in patients in need of long-term CVC who are at high risk of CRSBI, especially in facilities with high rate of CRBSI (eg, >3.5/1,000 days). *(Conditional Recommendation, Moderate Quality of Evidence)*

Recommandations KDOQI 2019

Table 24.1. Intraluminal Strategies: Effect of Antibiotic and Antimicrobial Catheter Lock Solutions on CRBSI: Summary of Randomized Clinical Trials

Agents Studied	Patients, n	Relative Risk (95% CI)	Anticipated Incidence of CRBSI (95% CI)		Quality of Evidence
Locking Solutions That Can Be Used Selectively for CRBSI Prophylaxis					
Cefotaxime[593-595] (3 RCTs)	227	0.42 (0.25-0.72)	Without antibiotic: 67.5%	With cefotaxime: 23.6%	Moderate
Gentamicin[583-585,596] (4 RCTs)	555	0.18 (0.07-0.46)	Without antibiotic: 22.1%	With gentamicin: 4.0% (1.5-10.2)	Moderate
Weekly TPA[506] (1 RCT)	225	0.30 0.11-0.85)	Heparin: 13%	Weekly TPA: 5%	Moderate
Cotrimoxazole[597] (1 RCT)	87	0.16 (0.04-0.69	Without antibiotic: 4.4 per 1,000 days	With antibiotic: 0.58 per 1,000 days	Low
Methylene blue[598] (1 RCT)	407	0.29 (0.12-0.70)	Heparin: 0.82 per 1,000 days	Methylene blue% 0.24 per 1,000 days	Low

Antibiotiques, taurolidine, citrate

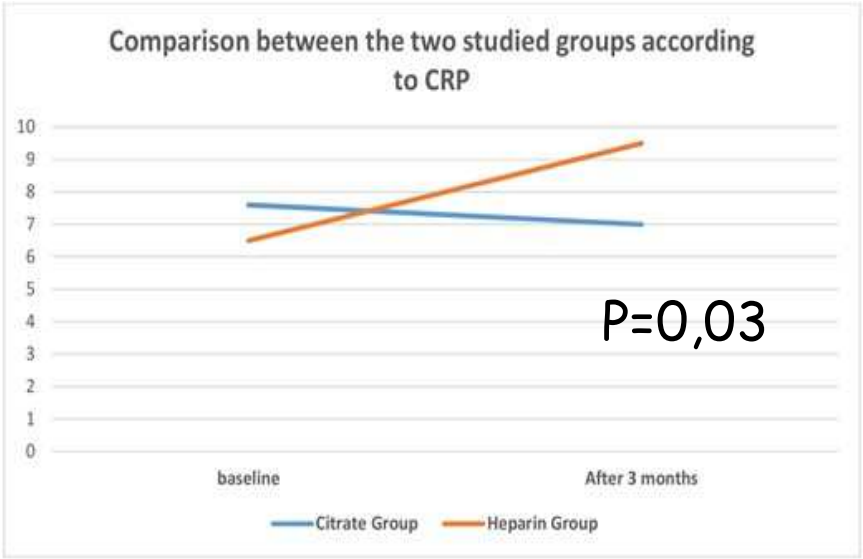


Nbre KT	108	50	76	40	110	76	291
Cathéters	T	T	NT	T	T	23%T	33%T
Verrou	G	G	CG	G	CFX		

Labriola et al. Nephrol Dial Transplant 2008 ; 23 :1666-1672

Citrate 30% vs Heparine 5000

RCT
70 Cathéters tunnellisés



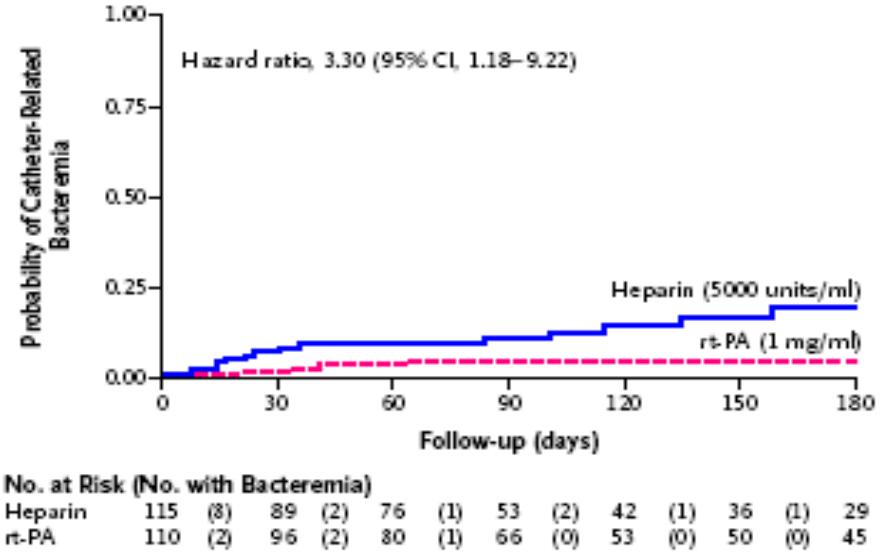
Elsharkawy et al. Nephrol Dial Transplant 2023;38: suppl1

Verrou hebdomadaire d'alteplase

Étude PreCLOT

225 cathéters/6 mois

Lundi	Mercredi	Vendredi
Héparine	Héparine	Héparine
Héparine	Alteplase	Héparine



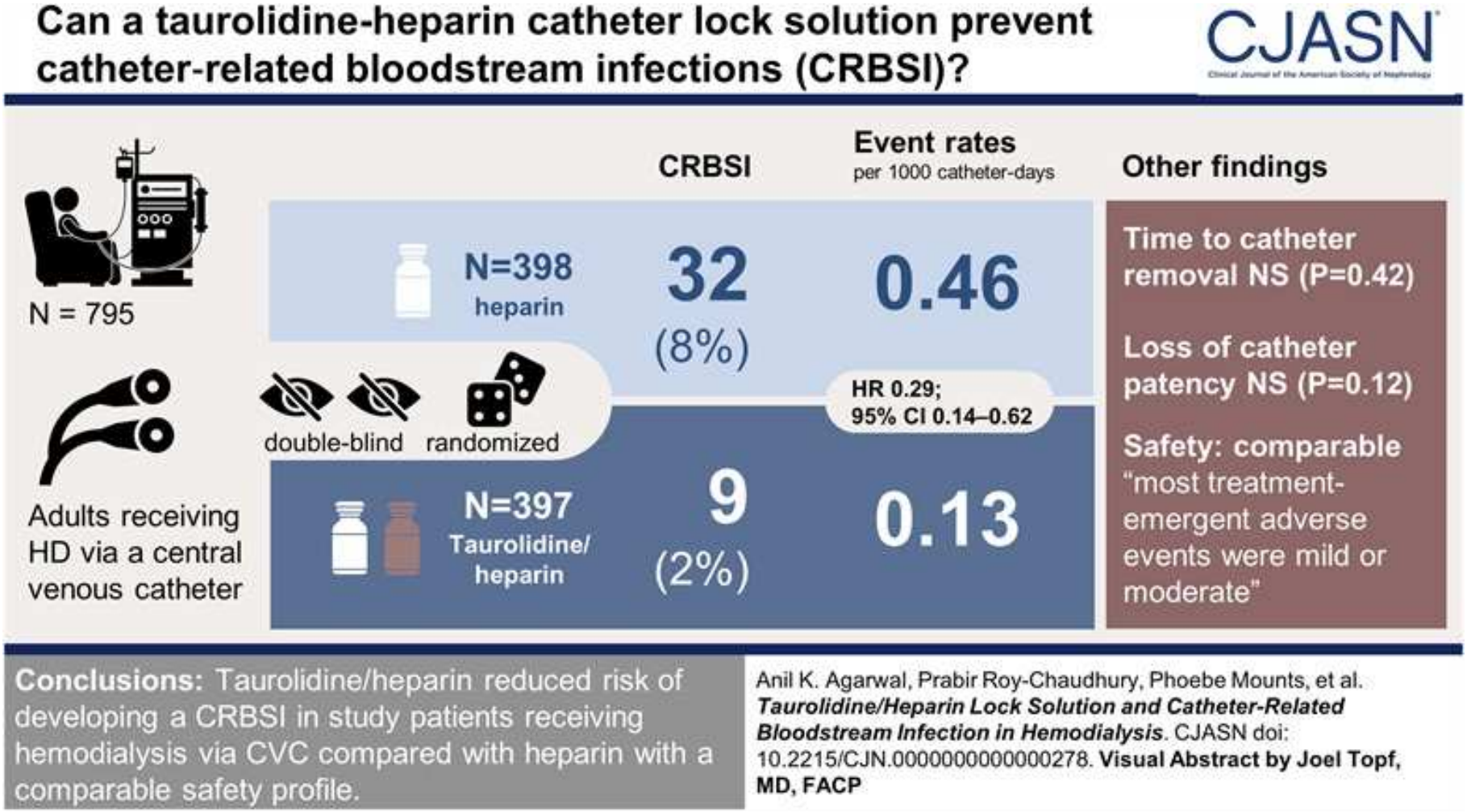
1,37 /1000jrs-KT

0,4 /1000jrs-KT

Hemmelgarn et al. N Engl J Med 2011 ; 364(4) :303-312

Tauro-Hep vs héparine

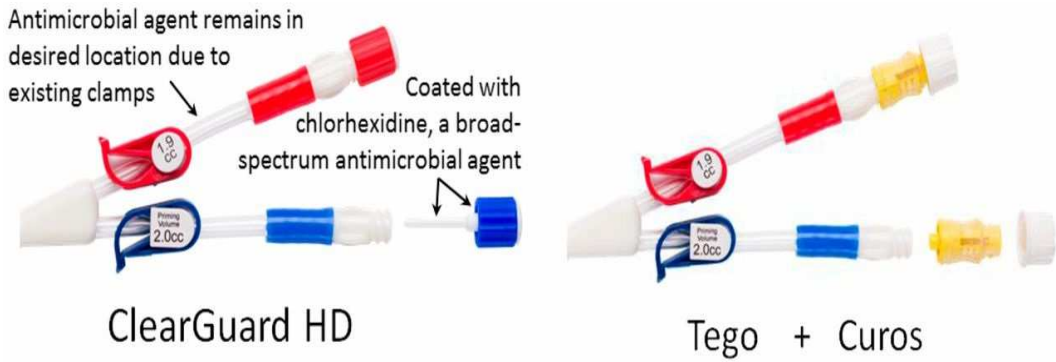
Lock-it 100 trial



Brunelli et al. Clin J Am Soc Nephrol 2023; 18: 1446-1455

ClearGuard vs TEGO + Curos

RCT/13 mois, 1671 patients
CJP: BLC



	Tego	ClearGuard	p
BLC (1000 jrs/KT)	0,75	0,28	0,001

Brunelli et al. J Am Soc Nephrol 2018; 29(4) : 220-227

Verre ou plastique ?



Que fait le public de la SFAV ?

- Héparine
- Taurolock
- Tauro Hep
- Citrate 4%
- Citrate 30%
- Citrate 46,7%
- Heparine + fibrinolytique
- Citrate + fibrinolytique
- Taurolock (Hep) + fibrinolytique