



Tværfagligt Obstetrisk Symposium

Profylaktisk tranexamsyre til kejsersnit
(Anæstesilæge Anne Wikkelsø, Roskilde)

Conflicts of interest

- None

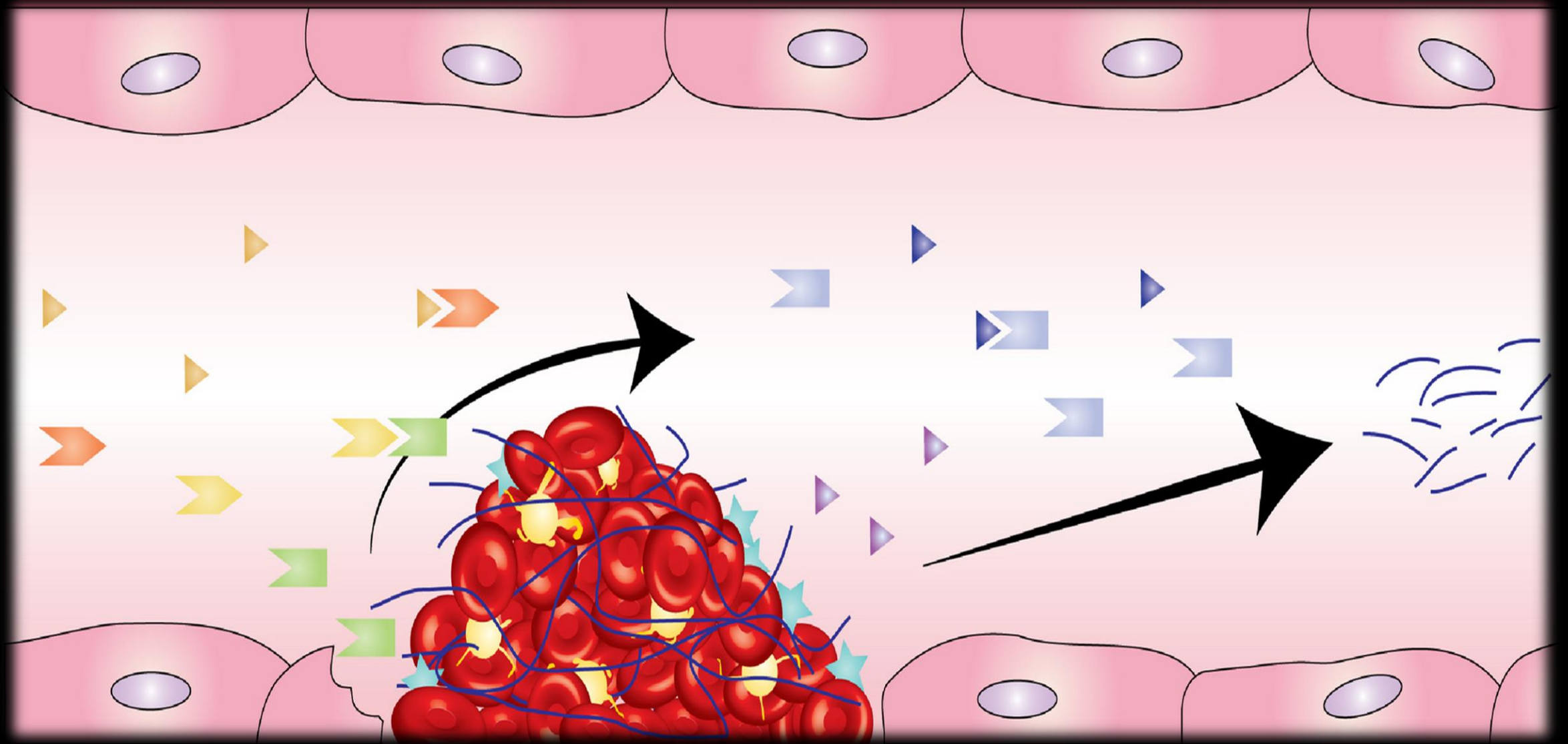




Tranexamsyre

Pris: 1 g = 4,53 DKK



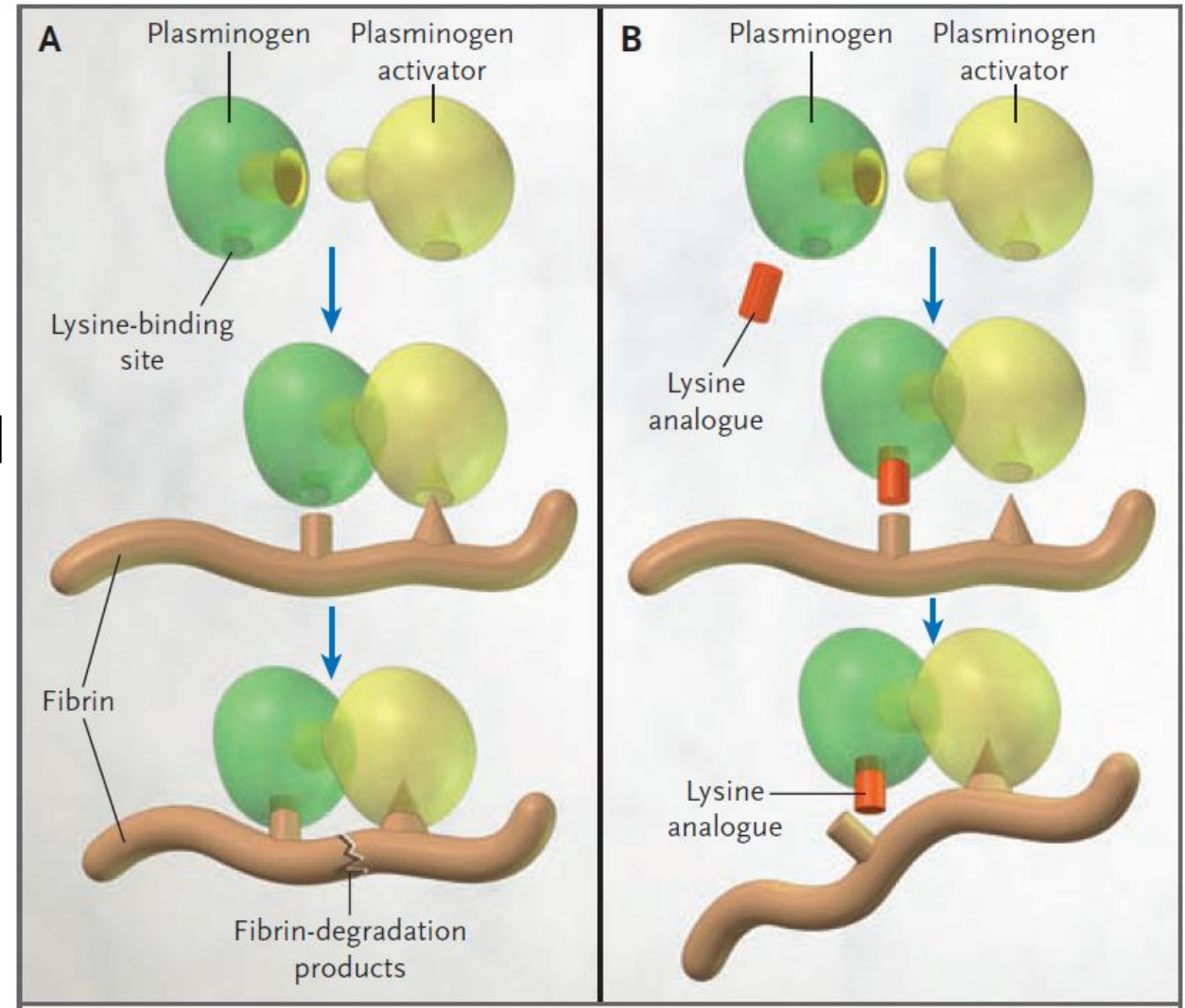


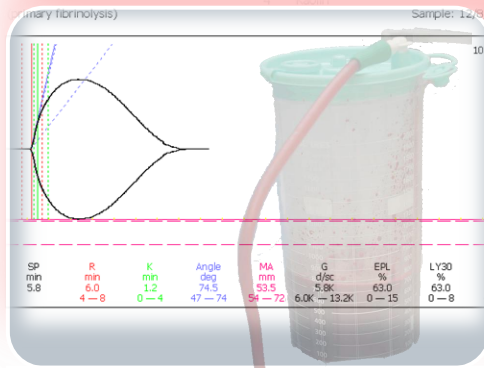
Koagel med fibrinstrengene

Hvordan virker TXA?

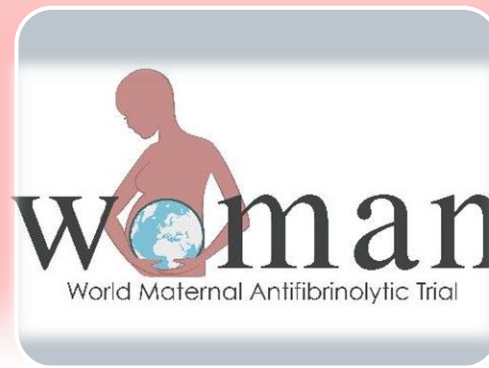
- ANTI-FIBRINOLYSE
 - Kompetitiv inhibering af plasminogens omdannelse til plasmin
(Plasmin er et enzym som forårsager nedbrydelse af fibrinstreng i koaglet)

$T_{1/2} = 3$ timer





**Patologisk
hyperfibrinolysis og
blødning**



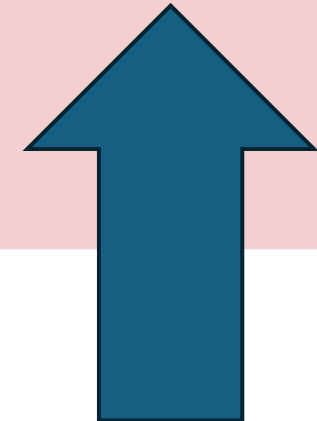
**Pre-emptiv behandling
dvs behandling når
blødning er opstået**



**Forebyggende ved
vaginal fødsel**



**Forebyggende
ved Sectio**



<3 timer

TXA PROFYLAKSE TIL SECTIO

→ TXA til alle sectio?

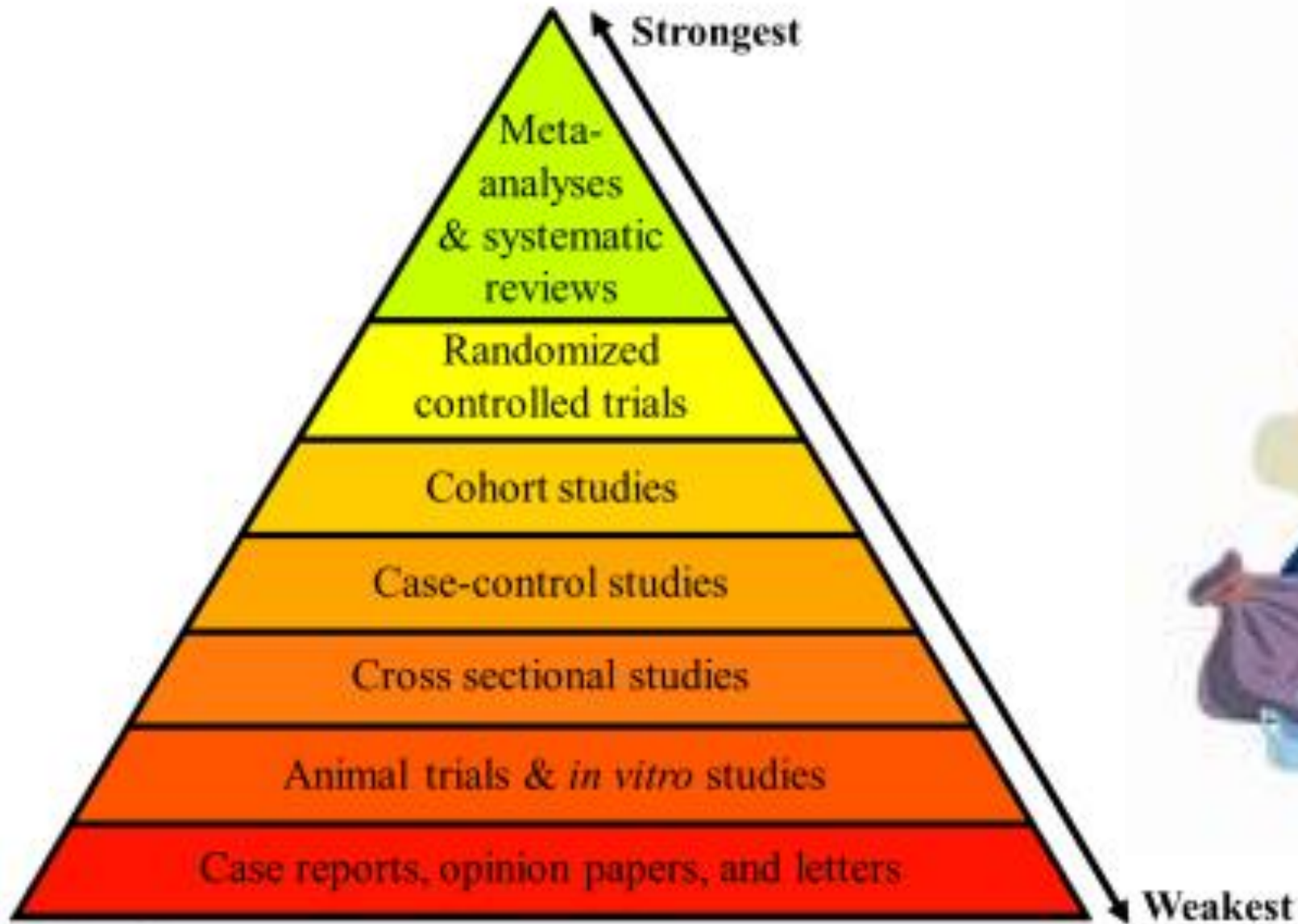
→ Effekt?

→ Bivirkninger?

→ Forbehold?



Hierarchy of Scientific Evidence



Am J Perinatol 2024; 41(S 01): e2254-e2268
DOI: 10.1055/a-2109-3730



Review Article

Prophylactic Tranexamic Acid Prevents Postpartum Hemorrhage and Transfusions in Cesarean Deliveries: A Systematic Review and Meta-analysis

Amy Lee , Mary Ying-Fang Wang , Debosree Roy , Jenny Wang , Abha Gokhale , Lauren Miranda-Cacdac , Moriah Kuntz , Bryan Grover , Kendra Gray , Kathleen L. Curley

> Author Affiliations

Funding None.

> Further Information

> Also available at eRef

RESEARCH

Open Access



Effect of preoperative prophylactic intravenous tranexamic acid on perioperative blood loss control in patients undergoing cesarean delivery: a systematic review and meta-analysis

Fan Yang¹, Han Wang² and Mengdie Shen^{3*}

Systematic Review

Tranexamic acid for the prevention of blood loss after cesarean section: an updated systematic review and meta-analysis of randomized controlled trials



Huzaiifa Ahmad Cheema, MBBS; Aamna Badar Ahmad, MBBS; Muhammad Ehsan, MBBS; Abia Shahid, MBBS; Muhammad Ayyan, MBBS; Saleha Azeem, MBBS; Ayesha Hussain, MBBS; Aden Shahid, MBBS; Abdulqadir J. Nashwan, MSc; Mislav Mikuš, MD, PhD; Antonio Simone Laganà, MD, PhD



**Cochrane
Library**

Cochrane Database of Systematic Reviews

Tranexamic acid for preventing postpartum haemorrhage after caesarean section (Review)

Rohwer C, Rohwer A, Cluver C, Ker K, Hofmeyr GJ



Tranexamic acid for the prevention of blood loss after cesarean section: an updated systematic review and meta-analysis of randomized controlled trials

AJOG 2023

Huzaifa Ahmad Cheema, MBBS; Aamna Badar Ahmad, MBBS; Muhammad Ehsan, MBBS; Abia Shahid, MBBS; Muhammad Ayyan, MBBS; Saleha Azeem, MBBS; Ayesha Hussain, MBBS; Aden Shahid, MBBS; Abdulqadir J. Nashwan, MSc; Mislav Mikuš, MD, PhD; Antonio Simone Laganà, MD, PhD



Ifunanya 2019

Jafarbegloo 2021

Kafayat 2018

Kamel 2018

Lakshmi and Abraham 2016

Maged 2015

Malathi 2016

Milani 2019

Movafegh 2011

Naeji 2021

Nargis and Dewan 2020

Nayyef 2020

Obi 2019

Ogunkuya 2022

Oseni 2021

Pacheco 2023

Pakniat 2019

Ramani 2014

Ray 2016

Sanad 2020

Sentilhes 2021

Sentürk 2013

Shabir 2019

Shady and Sallam 2017

Shahid and Khan 2013

Shalabi 2020

Shalaby 2022

Sharma 2011

Soliman 2021

Sujata 2016

Tabatabaie 2021

Taj 2014

Thavare 2019

Torky 2021

Xu 2013

Yehia 2014



50 trials/
7 low risk of bias

11,000
4,551

Tranexamic acid for preventing postpartum haemorrhage after caesarean section (Review)

Rohwer C, Rohwer A, Cluver C, Ker K, Hofmeyr GJ

6 trials (low risk of bias)

Alam 2023

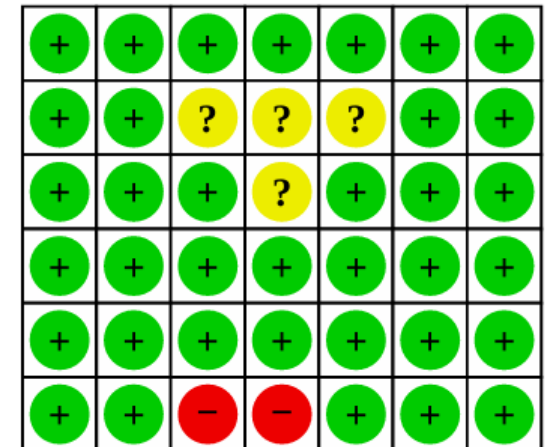
Lee 2023

Ogunkua 2022

Pacheco 2023

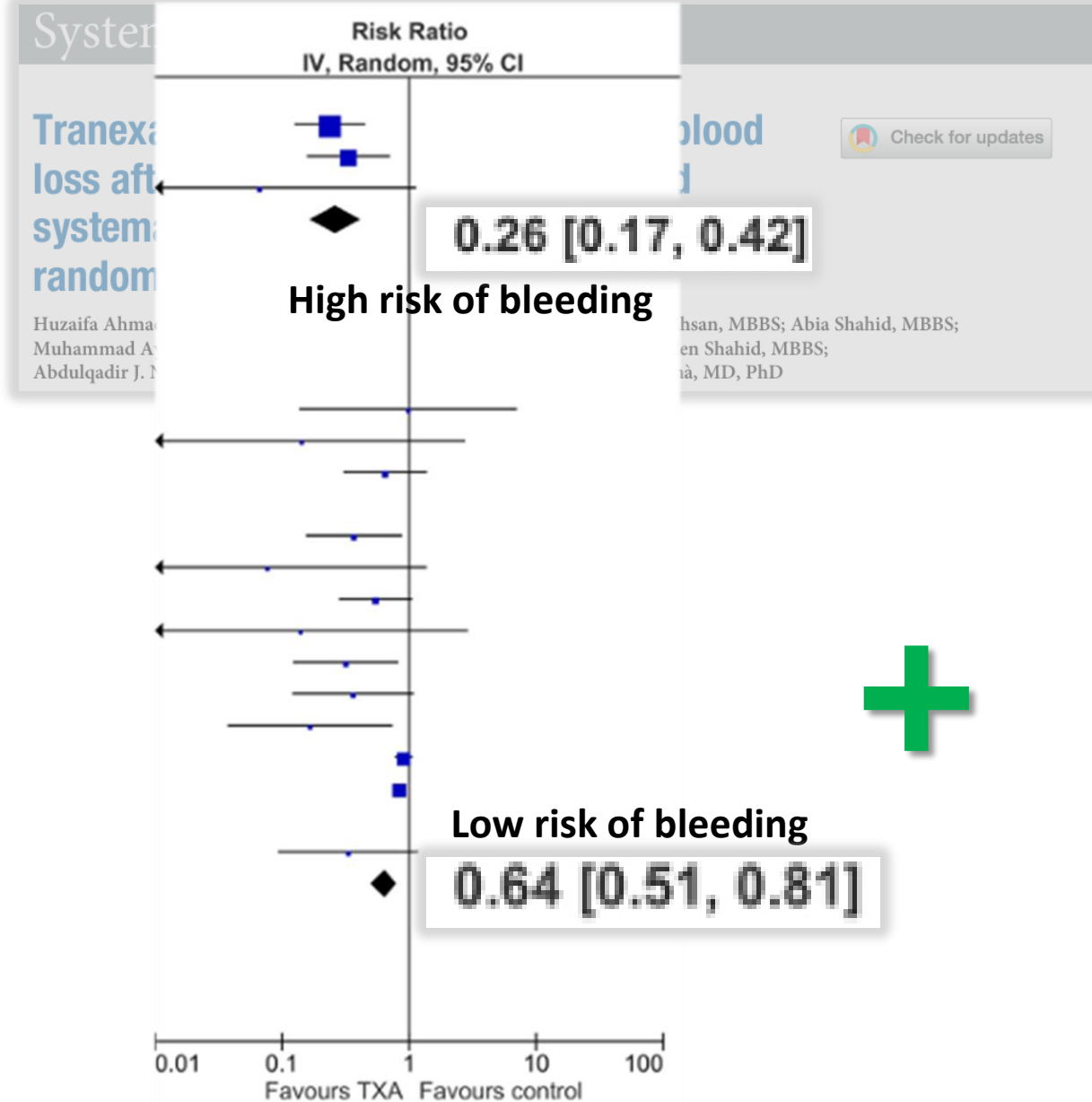
Sentilhes 2021

Shakur-Still 2023



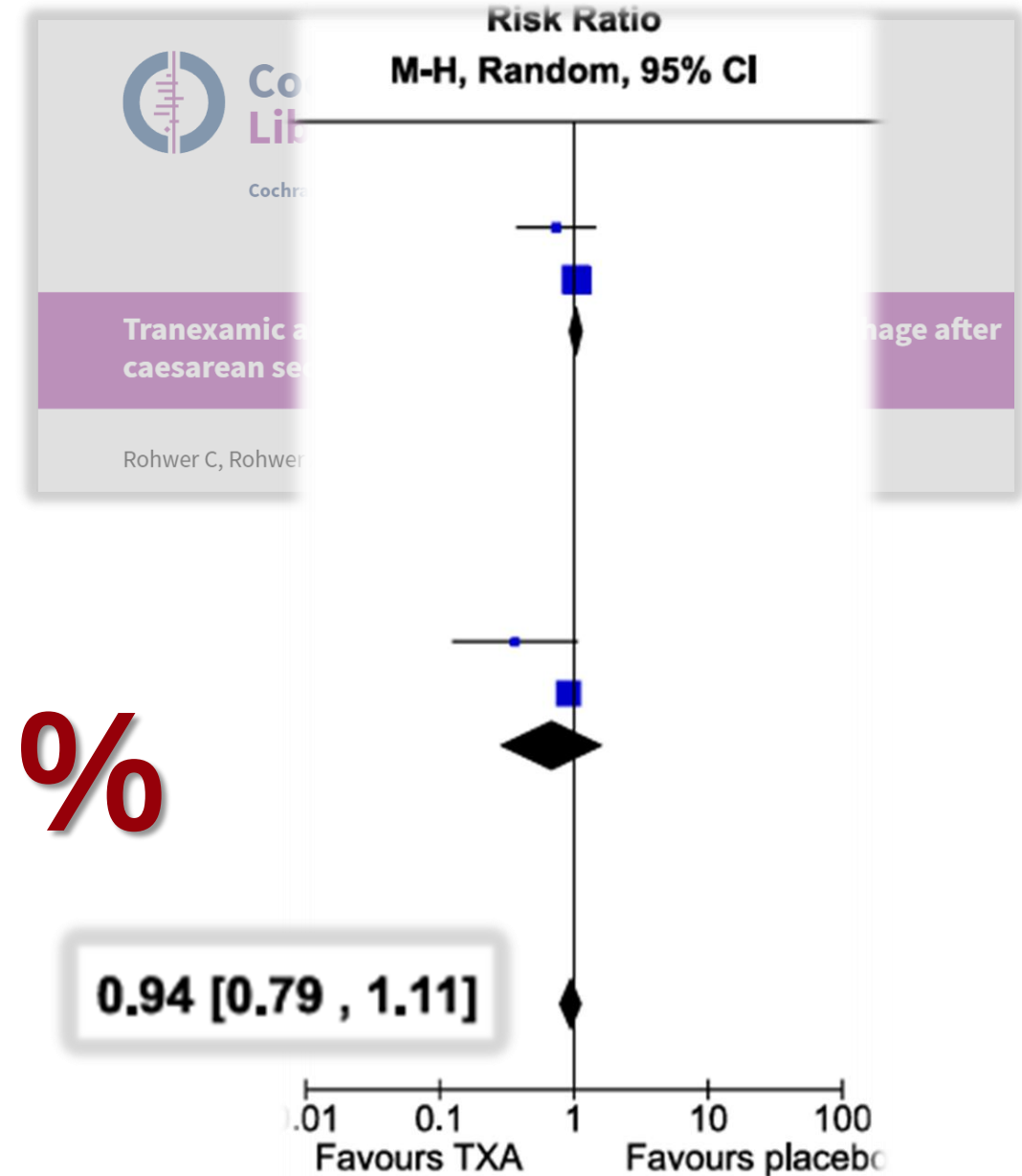
Effekt?

Estimated blood loss ≥ 1000 ml



+

%



Outcome	Cochrane Resultat 2024	Effekt?
Maternel død	Inkonklusiv/ 1 event	-
Behov for blodtransfusion	RR 0.88 (0.72-1.08)	+ ?%
Behov for ekstra kirurgisk intervention	RR 1.02 (0.86-1.22)	%
Behov for extra uterotonika	RR 0.88 (0.78-1.00)	%
Hysterektomi	RR 0.80 (0.20-3.29)	%
Klinisk PPH diagnose	RR 0.91 (0.79-1.06)	%

Risk Ratio (95% CI)



Estimeret blodtab

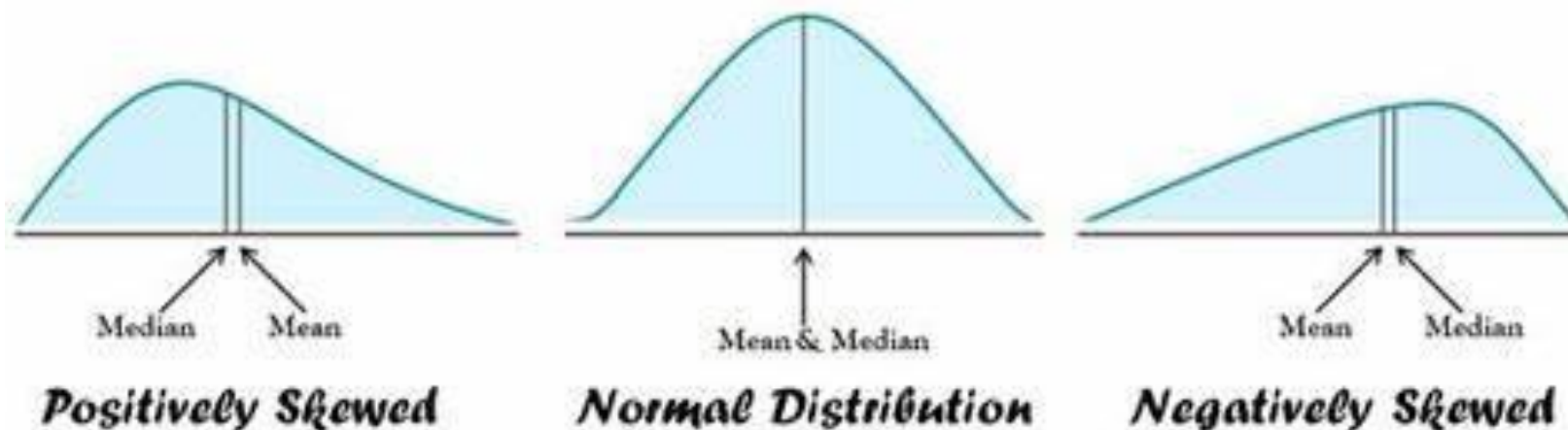
Cheema et al.

High risk of bleeding **-378** (-450 – -306) ml

Low risk of bleeding **-180** (-204 – -156) ml

Cochrane

Estimated blood loss **-26** (-82 – 30) ml





The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

N= 11,000 Tranexamic Acid to Prevent Obstetrical Hemorrhage after Cesarean Delivery

L.D. Pacheco, R.G. Clifton, G.R. Saade, S.J. Weiner, S. Parry, J.M. Thorp, Jr., M. Longo, A. Salazar, W. Dalton, A.T.N. Tita, C. Gyamfi-Bannerman, S.P. Chauhan, T.D. Metz, K. Rood, D.J. Rouse, J.L. Bailit, W.A. Grobman, H.N. Simhan, and G.A. Macones, for the Eunice Kennedy Shriver National Institute of Child Health and Human Development Maternal–Fetal Medicine Units Network*

Randomized Controlled Trial

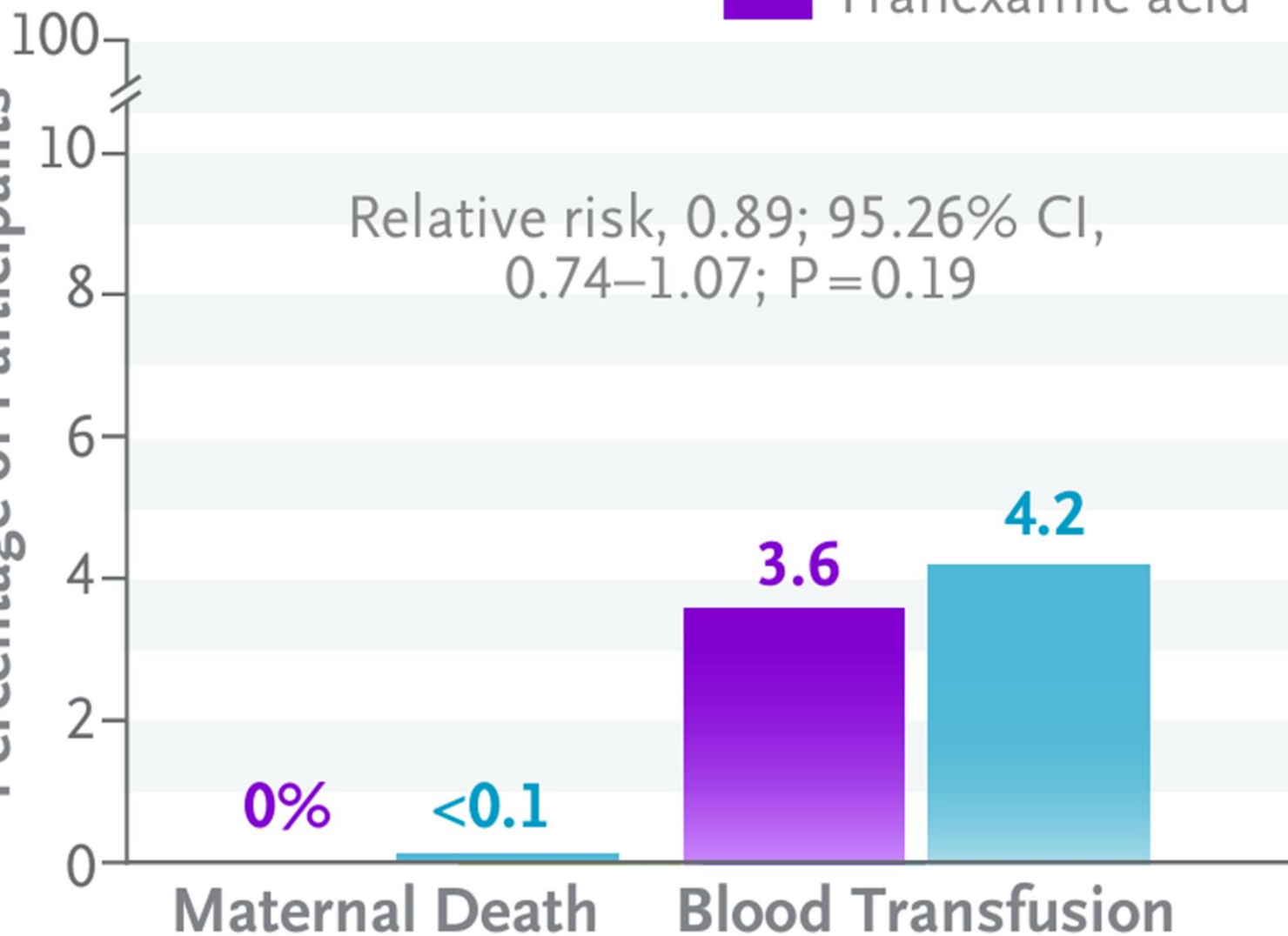
➤ N Engl J Med. 2023 Apr 13;388(15):1365-1375.

doi: 10.1056/NEJMoa2207419.

Maternal Death or Blood Transfusion

Tranexamic acid

Percentage of Participants



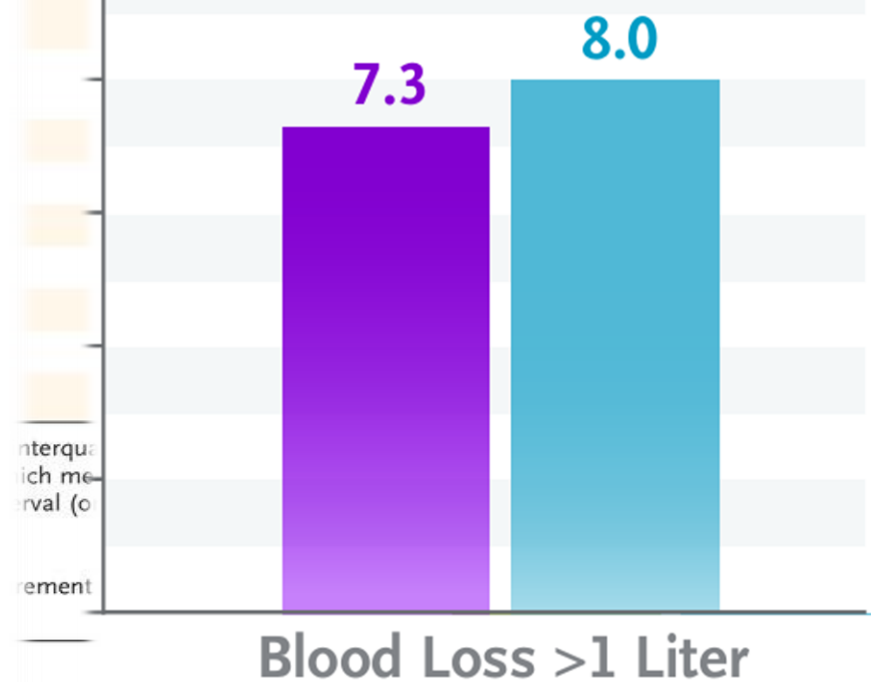
Relative Risk or Mean Difference (95% CI) †

0.89 (0.74 to 1.07) ‡

Estimated Blood Loss >1 Liter

Placebo

Relative risk, 0.91; 95% CI, 0.79–1.05



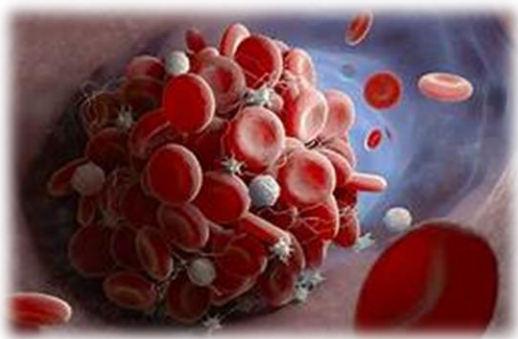
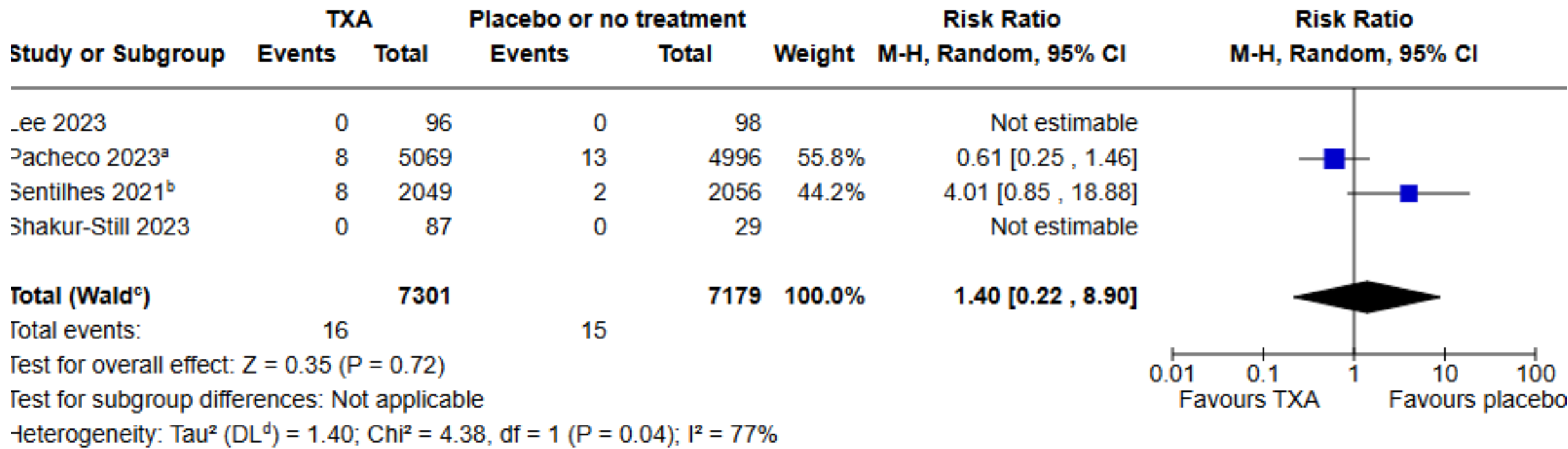
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‡ P=0
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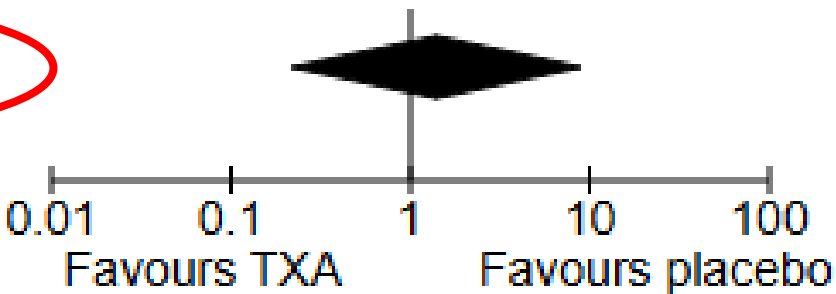
Bivirkninger?

Tromboembolisk event

Cochrane 2024



1.40 [0.22 , 8.90]



1 more per 1000 women having a thromboembolic event (from 2 fewer to 17 more)

Dem vi ikke har undersøgt!

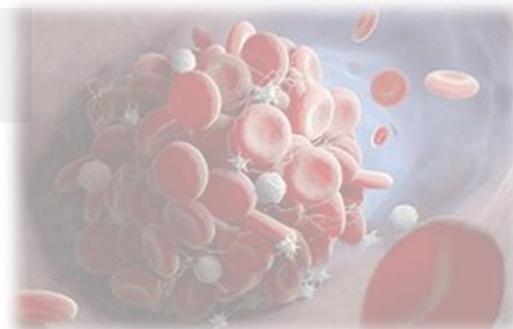
Trial	Tidligere <u>trombotisk</u> sygdom hos deltagere
ALAM 2023	%
LEE 2023	%
OGUNKUA 2022	%
PACHECO 2023	%
SENTILHES 2021	%
SHAKUR-STILL 2023	%

Kontraindikationer

- Aktiv trombotisk sygdom som fx dyb venetrombose, lungeemboli, arteriel trombose og cerebral trombose
- Subaraknoidalblødning, undtaget i den akutte fase
- Kramper i anamnese
- Dissemineret intravaskulær koagulation, undtagen ved akut dissemineret intravaskulær koagulation ledsaget af svær hyperfibrinolyse og fibrinogenmangel.

Forsigtighedsregler

- Tidligere tromboembolisk sygdom eller familiær disposition hertil.
- Ved behandling af patienter med kendt eller vurderet øget tromboasetendens bør der samtidig gives tromboseprofylaktisk behandling.



Seizure/kramper

Forveksling af medicin
førte til et fatalt
patientforløb: Region
Hovedstaden deler mhp
læring

I Region Hovedstaden har vi haft et patientforløb, der desværre endte fatalt.

fejlagtigt dosis af tranexamsyre intraspinalt

fik kramper og efterfølgende hjertestop.

~~Spinal/Epidural adm~~

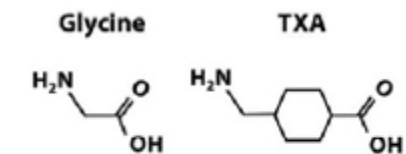




Hvorfor seizures?

- GABA_A og glycine receptorer giver CNS inhibering
- TXA: kompetitiv antagonist til GABA_A og glycin receptorer

Trial	Kendt med epilepsi/krampe r i anamnese
ALAM 2023	%
LEE 2023	%
OGUNKUA 2022	?
PACHECO 2023	%
SENTILHES 2021	%
SHAKUR-STILL 2023	?



TXA is a structural
analogue of glycine





Profylaktisk TXA til sectio

- Uden sikker effekt
- Uden påviste alvorlige bivirkninger, men....
- Ikke undersøgt til kendt tromboemboli, kendt seizures/kramper
- Forveksling og CNS adm kan være fatalt

A close-up photograph of a surgical procedure. Several hands wearing blue nitrile gloves are visible, manipulating surgical instruments. The instruments include a long, thin metal rod or needle, a pair of surgical forceps, and a scalpel. The surgical site is exposed, showing red tissue and blood. The background is a sterile, light-colored surgical drape.

Tak for opmærksomheden!
wikkelso@gmail.com