

Predoperačné podávanie kyseliny tranexámovej v ortopedii – up to date 2023

MUDr. Miklós Szabó

Nemocnica Bory

Oddelenie ortopédie



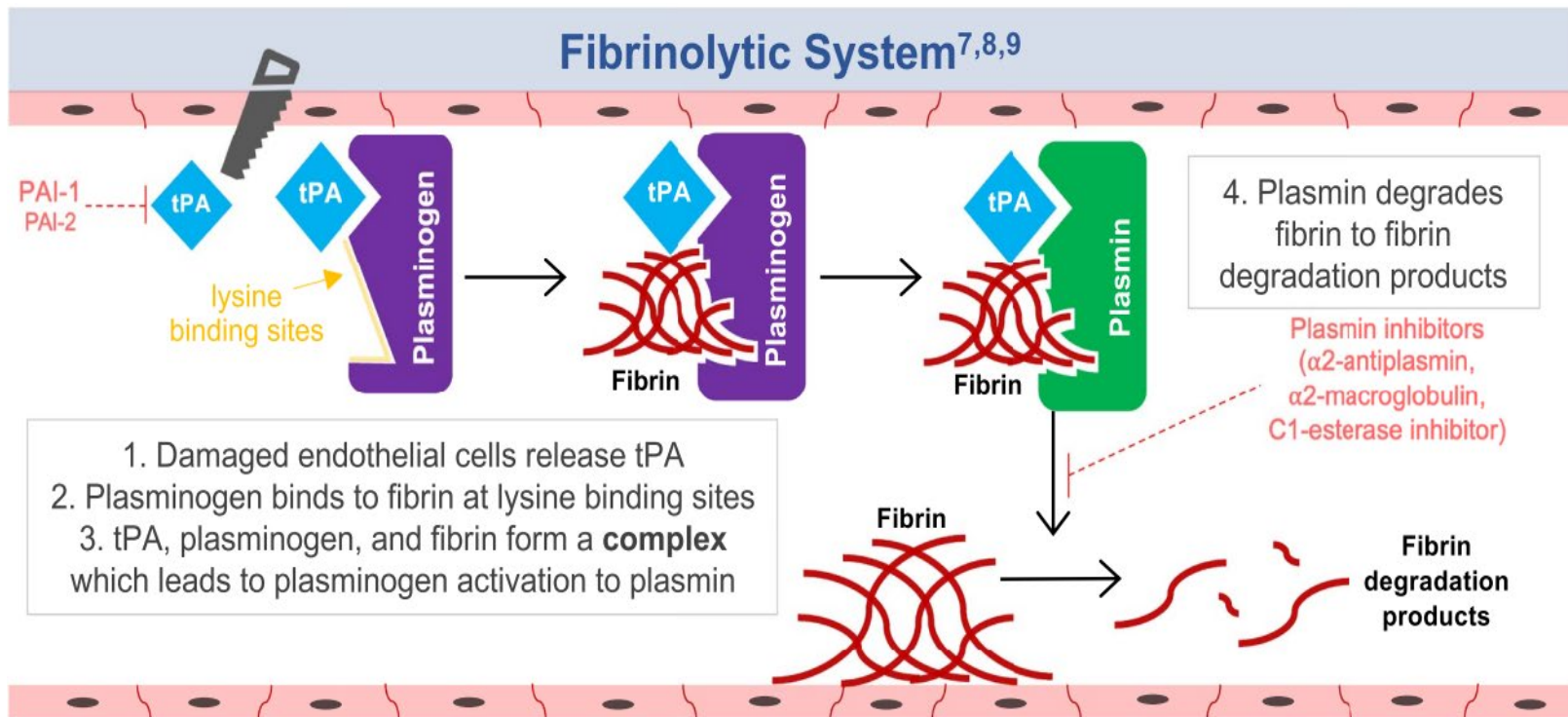
Konflikt záujmov

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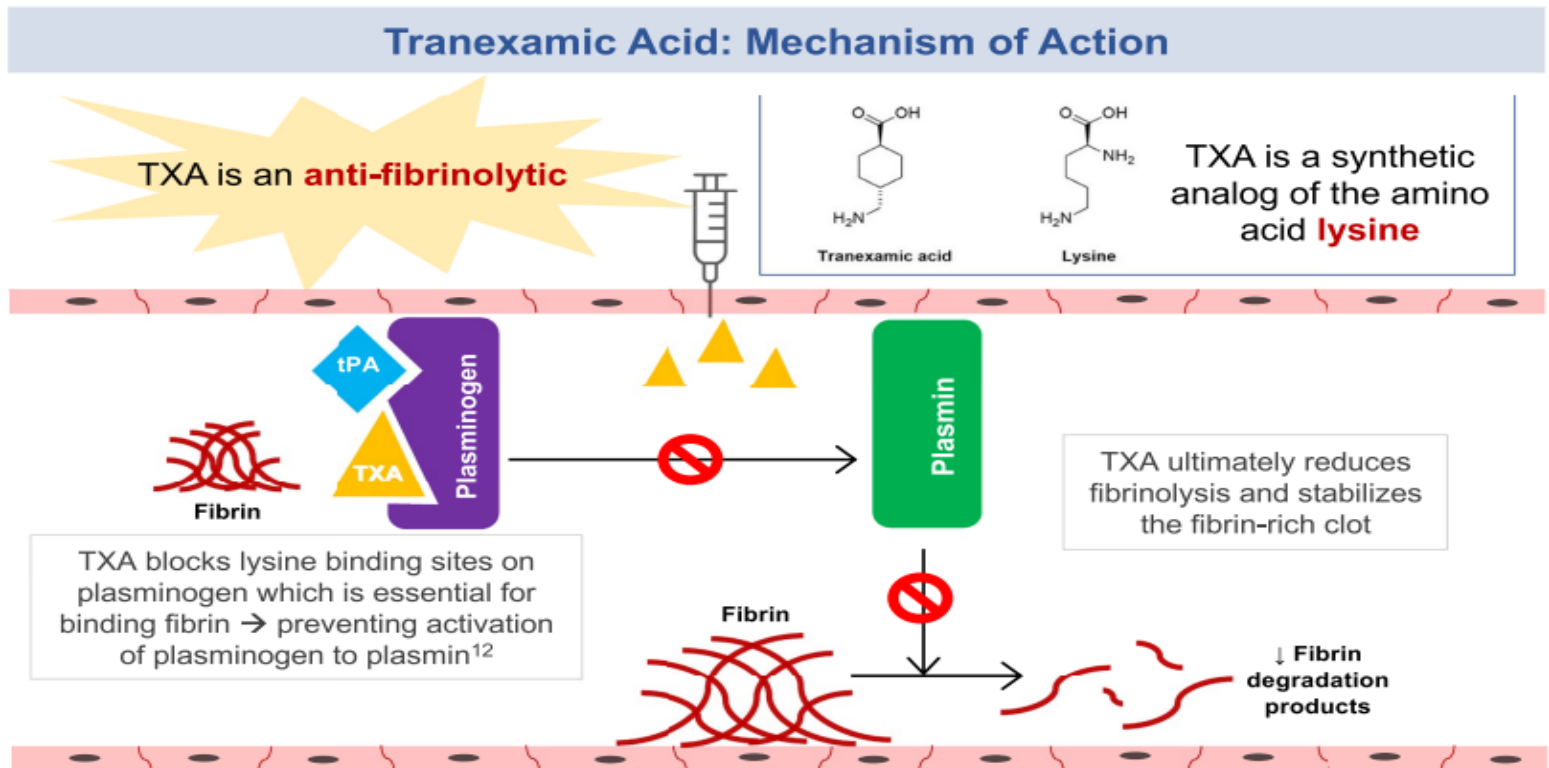
Shoshuke a Utako Okamoto

Mechanismus účinku kyseliny tranexámovéj



Relke, N, Chornenki, NLJ, Sholzberg, M. Tranexamic acid evidence and controversies: An illustrated review. *Res Pract Thromb Haemost.* 2021; 5:e12546. <https://doi.org/10.1002/rth.2.12546>

Mechanismus účinku kyseliny tranexámovéj



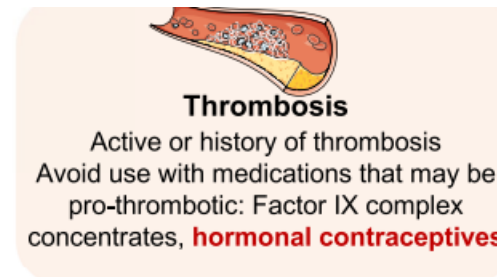
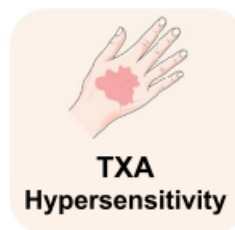
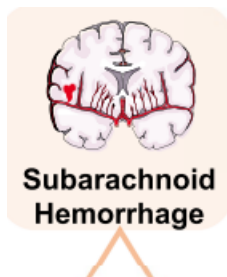
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MUDr. Andrey Švec, PhD., hlavný odborník MZSR pre odbor ortopédia
I. Ortopedicko-traumatologická klinika UNB, Ružinovská 6, 826 06 Bratislava

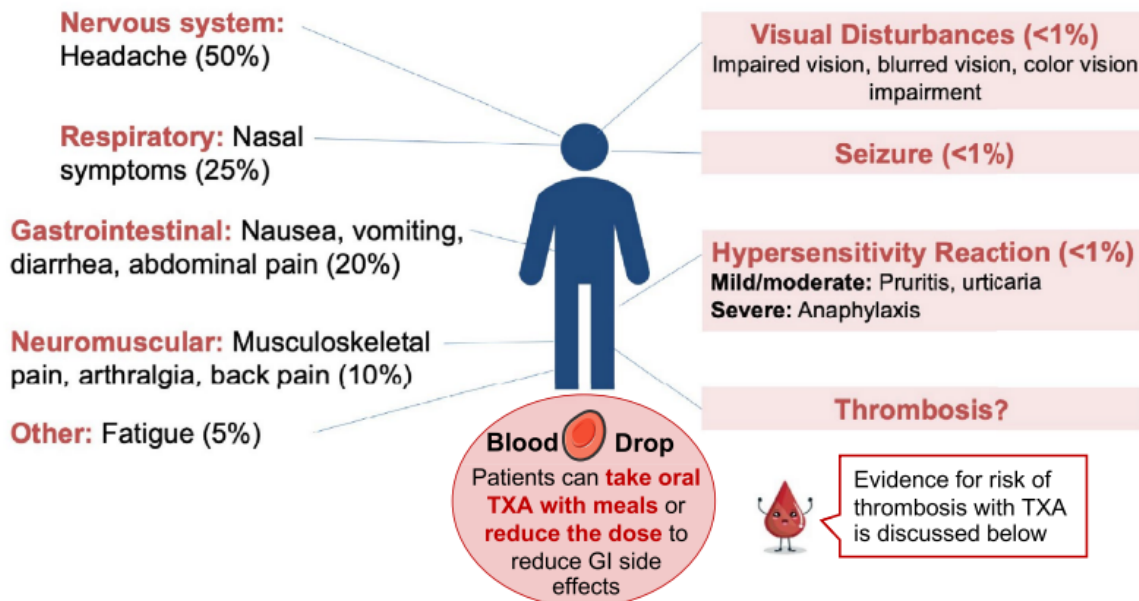
**Odporúčanie použitia kyseliny tranexámovej (Exacyl)
pre ortopedickú anestéziu
(vypracoval MUDr. Andrey Švec, PhD. a MUDr. Peter Mráz)**

- TEP kolena a bedra
- revíziu endorpotetiku
- veľké tumorózne zákroky
- pri závažnom perioperačnom krvácaní.

Vedľajšie účinky a kontraindikácie



Side Effects of Systemic TXA^{38,39,40}



The Efficacy of Tranexamic Acid in Total Hip Arthroplasty: A Network Meta-analysis

Yale A Fillingham¹, Dipak B Ramkumar², David S Jevsevar², Adolph J Yates³, Peter Shores⁴, Kyle Mullen⁴, Stefano A Bini⁵, Henry D Clarke⁶, Emil Schemitsch⁷, Rebecca L Johnson⁸, Stavros G Memtsoudis⁹, Siraj A Sayeed¹⁰, Alexander P Sah¹¹, Craig J Della Valle¹

Affiliations [+](#) expand

PMID: 30007789 DOI: [10.1016/j.arth.2018.06.023](https://doi.org/10.1016/j.arth.2018.06.023)

Intravenous TXA administered as a single dose either before or after incision, reduced the risk of transfusion by either 81% or 55% compared to placebo.

Our results demonstrated a treatment effect significantly favoring all available forms of TXA compared with placebo. We observed relatively large reductions in the mean difference of blood 225 mL and 331 mL in favor of TXA treatments compared with placebo.

Have the cake and eat it too

Research, Society and Development, v. 11, n. 15, e160111537094, 2022
(CC BY 4.0) | ISSN 2525-3409 | DOI: <http://dx.doi.org/10.33448/rsd-v11i15.37094>

Thromboembolic event index after total knee arthroplasty with the use of tranexamic acid: an integrative review

Índice de eventos tromboembólicos após artroplastia total do joelho com uso de ácido tranexâmico: uma revisão integrativa

Tasa de eventos tromboembólicos después de la artroplastia total de rodilla con ácido tranexámico: una revisión integradora

Received: 10/26/2022 | Revised: 11/03/2022 | Accepted: 11/06/2022 | Published: 11/13/2022

Meta-Analysis > J Arthroplasty. 2018 Oct;33(10):3070-3082.e1. doi: 10.1016/j.arth.2018.03.031. Epub 2018 Mar 22.

The Safety of Tranexamic Acid in Total Joint Arthroplasty: A Direct Meta-Analysis

Yale A Fillingham¹, Dipak B Ramkumar², David S Jevsevar², Adolph J Yates³, Peter Shores⁴, Kyle Mullen⁴, Stefano A Bini⁵, Henry D Clarke⁶, Emil Schemitsch⁷, Rebecca L Johnson⁸, Stavros G Memtsoudis⁹, Siraj A Sayeed¹⁰, Alexander P Sah¹¹, Craig J Della Valle¹

Affiliations + expand

PMID: 29699826 DOI: 10.1016/j.arth.2018.03.031

Thus, the safety of the use of tranexamic acid is proven, so that **99.5% of the patients did not present thromboembolic events**. The likely explanation lies in the fact that tranexamic acid does not affect fibrinolytic activity in the vein walls and does not promote prothrombotic activity in the groups studied. Furthermore, arthroplasty presents risks of thrombus formation by the physiological process of coagulation. Several studies have reported that the **occurrence of thromboembolic events is even higher in patients who do not use acid**

Venous thromboembolism and mortality associated with tranexamic acid use during total hip and knee arthroplasty

Christopher M Duncan ¹, Blake P Gillette ², Adam K Jacob ¹, Rafael J Sierra ³,
Joaquin Sanchez-Sotelo ³, Hugh M Smith ¹

Tranexamic acid use and postoperative outcomes in patients undergoing total hip or knee arthroplasty in the United States: retrospective analysis of effectiveness and safety

Jashvant Poeran ¹, Rehana Rasul ¹, Suzuko Suzuki ², Thomas Danninger ², Madhu Mazumdar ¹,
Mathias Opperer ², Friedrich Boettner ³, Stavros G Memtsoudis ⁴

Tranexamic Acid Was Safe in Arthroplasty Patients With a History of Venous Thromboembolism: A Matched Outcome Study

Orlando D Sabbag ¹, Matthew P Abdel ¹, Adam W Amundson ², Dirk R Larson ³, Mark W Pagnano ¹

Large database studies suggest TXA administration in patients with a history of VTE or ASA status of ≥ 3 does not experience an increased risk of VTE. The benefits of using TXA appear to outweigh the potential risks of thromboembolic events even in patients with a higher comorbidity.

The Safety of Tranexamic Acid in Total Joint Arthroplasty: A Direct Meta-Analysis

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PMID: 29699826 DOI: 10.1016/j.arth.2018.03.031

The existing high quality literature regarding administration of TXA in patients of generally higher comorbidity burden (VTE, MI, CVA, TIA, and/or vascular stent placement) does not suggest increased risk of adverse thromboembolic events during the perioperative episode of a primary TJA.

Dávkovanie

Randomized Controlled Trial > Clin Orthop Relat Res. 2012 Sep;470(9):2605-12.

doi: 10.1007/s11999-012-2310-y. Epub 2012 Mar 15.

Most effective regimen of tranexamic acid in knee arthroplasty: a prospective randomized controlled study in 240 patients

Rajesh N Maniar¹, Gaurav Kumar, Tushar Singhi, Ravi Mohan Nayak, Parul R Maniar

Affiliations + expand

PMID: 22419350 PMCID: [PMC3830076](#) DOI: [10.1007/s11999-012-2310-y](#)

Meta-Analysis > J Arthroplasty. 2018 Oct;33(10):3070-3082.e1. doi: 10.1016/j.arth.2018.03.031.

Epub 2018 Mar 22.

The Safety of Tranexamic Acid in Total Joint Arthroplasty: A Direct Meta-Analysis

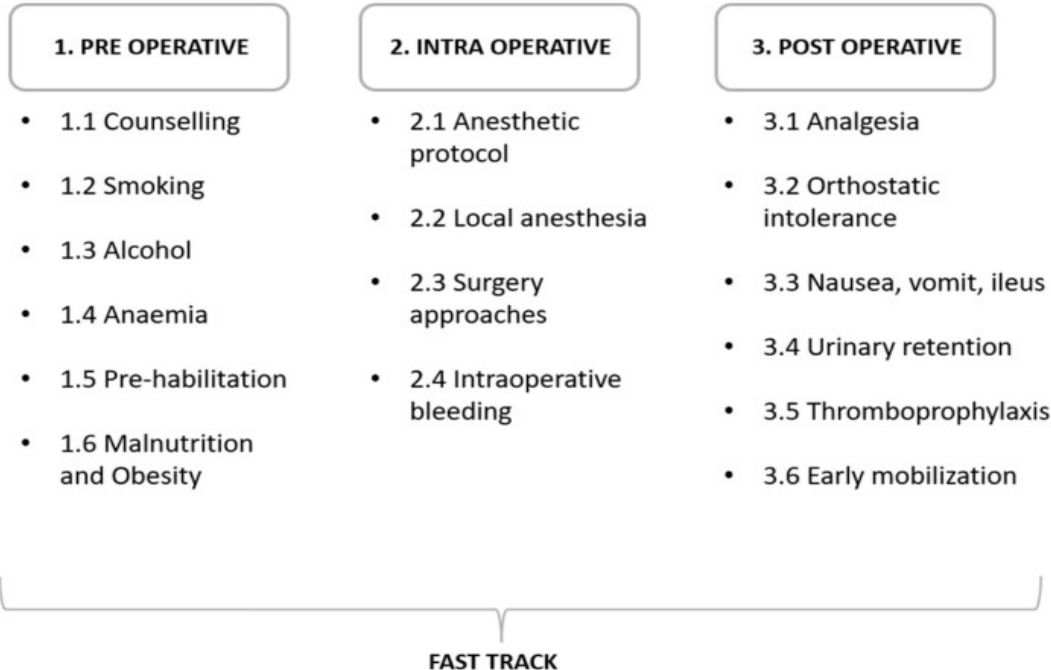
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Affiliations + expand

PMID: 29699826 DOI: [10.1016/j.arth.2018.03.031](#)

Network meta-analysis demonstrates no additional reduction in blood loss following a hip or knee arthroplasty with high dose IV ($\geq 20\text{mg/kg}$) TXA compared to low dose IV ($< 20\text{mg/kg}$) TXA.

Part of the bigger picture



[Clin Pract](#). 2023 Jun; 13(3): 569–582.
Published online 2023 Apr 25. doi: [10.3390/clinpract13030052](https://doi.org/10.3390/clinpract13030052)

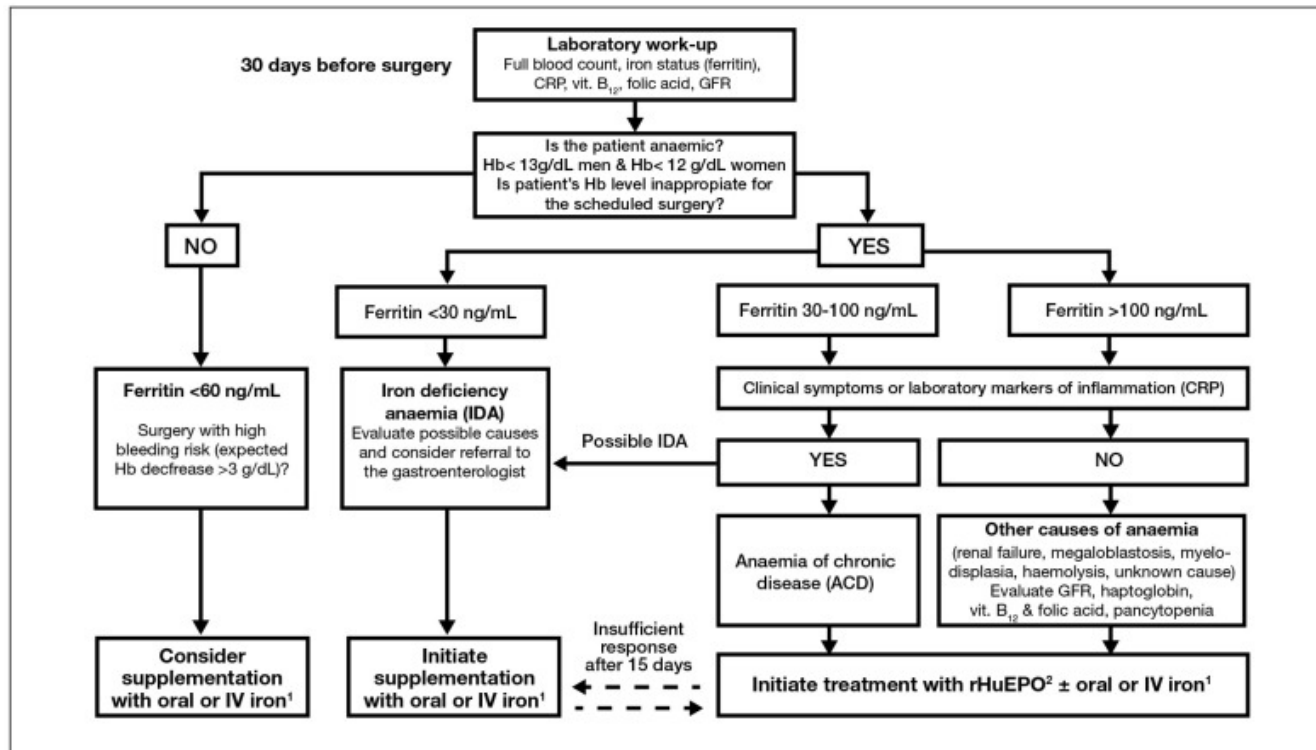
PMCID: PMC10204442
PMID: [37218803](https://pubmed.ncbi.nlm.nih.gov/37218803/)

Fast Track Protocols and Early Rehabilitation after Surgery in Total Hip Arthroplasty: A Narrative Review

[Alberto Di Martino](#)^{1,2,*} [Matteo Brunello](#)^{1,2} [Davide Pederiva](#)^{1,2} [Francesco Schilardi](#)^{1,2} [Valentino Rossomando](#)^{1,2} [Piergiorgio Cataldi](#)^{1,2} [Claudio D'Agostino](#)^{1,2} [Rossana Genco](#)^{1,2} and [Cesare Faldini](#)^{1,2}

Giustino Varrassi, Academic Editor

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Peri-operative treatment of anaemia in major orthopaedic surgery: a practical approach from Spain

Elvira Bisbe¹, Misericordia Basora², María J Colomina³;

Spanish Best Practice in Peri-operative Anaemia Optimisation Panel

Affiliations + expand

PMID: 28151388 PMID: PMC5490724 DOI: 10.2450/2017.0177-16

OP technika

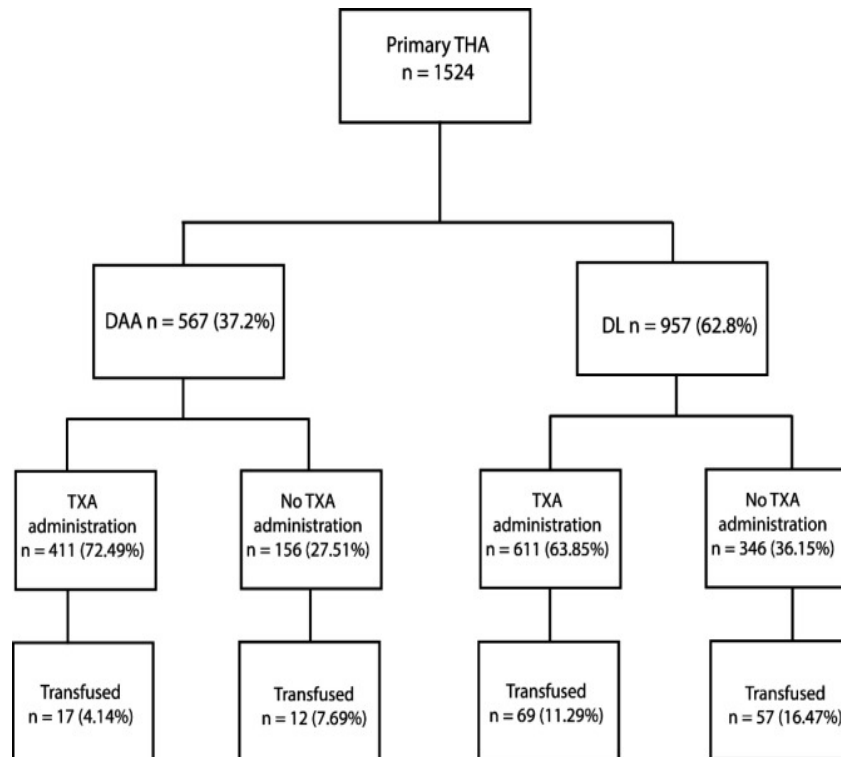
[Arch Bone Jt Surg](#). 2021 Nov; 9(6): 659–664.
doi: [10.22038/ABJS.2021.50237.2497](#)

PMCID: PMC8765200
PMID: [35106331](#)

Transfusion Rates in Total Hip Arthroplasty Are lower in Patients with Direct Anterior Approach

[George A. Komnos](#), MD,¹ [Jorge Manrique](#), MD,^{1,2} [Carol Foltz](#), PhD,¹ [Mitchell R. Klement](#), MD,¹ [Camilo Restrepo](#), MD,¹ and [Javad Parvizi](#), MD, FRCS¹

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In a case-control retrospective cohort study, we analyzed 1,524 primary THAs performed at a single institution by seven fellowship-trained surgeons between January 2015 to March 2017. All patients received THA using either the modified direct lateral (DL) or direct anterior (DA) approach using a standard operating table. The overall ABT rate was 10.2% (155/1,524) in the cohort. Demographic, surgical, and postoperative data were extracted and analyzed. Logistic regression was used to identify independent risk factors for transfusion. Higher preoperative hemoglobin ($p<0.001$), use of DA approach ($p<0.016$) and administration of tranexamic acid TXA, ($p=0.024$) were identified as independent factors which reduced the odds of ABT.

LIA- Local infiltration anasthesia

Comparative Study > J Arthroplasty. 2015 Nov;30(11):2034-7. doi: 10.1016/j.arth.2015.05.025.

Epub 2015 May 19.

Reduced Blood Loss and Transfusion Rates: Additional Benefits of Local Infiltration Anaesthesia in Knee Arthroplasty Patients

Mohammed A Bhutta ¹, Sanil H Ajwani ², Gordon J Shepard ², William G Ryan ²

Affiliations + expand

PMID: 26115980 DOI: 10.1016/j.arth.2015.05.025

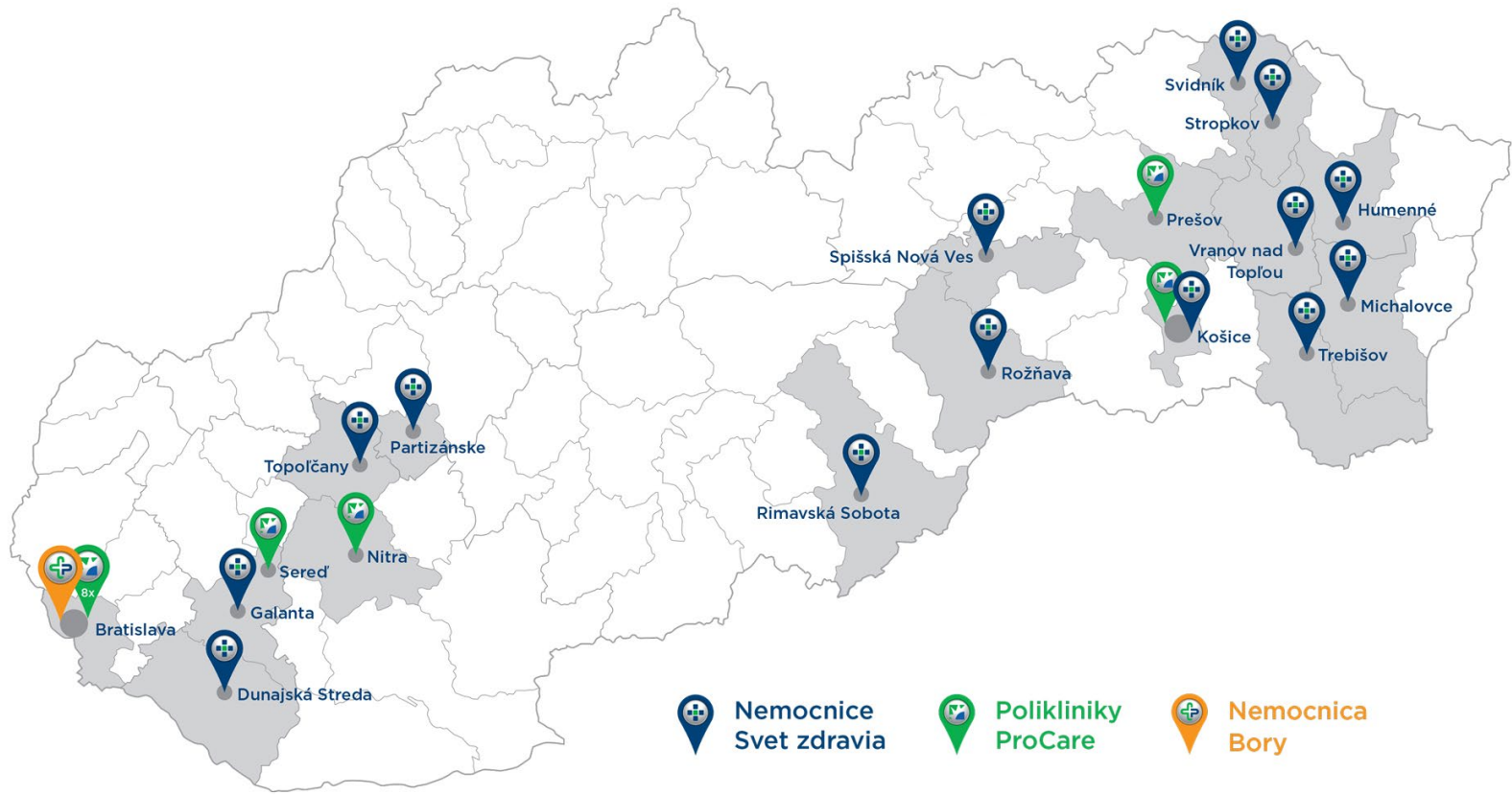
There was a statistically significant difference in blood loss ($P = 0.003$), between the LIA group (M = 942 ml, CI 829–1055), and the patient-controlled anasthesia group (PCA) (M = 1314 ml, CI 1099–1527). Patients receiving PCA were 4.3 times more likely to require blood transfusion. Using the LIA technique reduces blood loss and risk of blood transfusion

Náš režim

- 30 min predoperačne jednorazová dávka 20mg/kg TXA
- LIA- 100ml- (Dexamed- 4ml/8mg, Levobupivacain 20ml, Adrenalin 76ml- 1:100 000)
- Mechanická a chemická profylaxia TECH- postoperačne
- Muscle-sparing approach(DAA), šetrná operačná technika a dôkladná hemostáza
- Skríning okultnej anémie a malnutricie a korekcia

Naše výsledky

Po zavedení fast track protokolu- screening anémie, podanie LIA, TXA, prevencia TECH postop, DAA approach
≈ 1,42 % implantácií endoprotéz vyžadujúcich transfúziu z posledných 1750 pac.



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