EDITORIAL Open Access

# Should prophylaxis of venous thromboembolism in Asian patients undergoing knee and hip arthroplasty and hip fracture surgery be an issue?



Aree Tanavalee

Postoperative venous thromboembolism (VTE) is a significant cause of morbidity and mortality in patients undergoing knee and hip arthroplasty and hip fracture surgery, while VTE is considered potentially preventable with several modalities of prophylactic management [1].

The VTE prevention guidelines by the American Academy of Orthopedic Surgeons (AAOS) or the American College of Chest Physicians (AACP) have been implemented in most countries in Asia [2, 3]. However, there are some concerning issues and complications related to VTE prophylaxis in major joint replacement and hip fracture surgeries according to these guidelines, due to differences in the healthcare systems and various cultural aspects [4–6].

Among orthopedic surgeons who practice in the Asia-Pacific (AP) region, some alternative options for VTE prevention in hip and knee arthroplasty and hip fracture surgery are believed to be necessary [7–10]. These Asian-specific guideline/consensus statements are expected to provide better patient outcomes and compliance. Therefore, in a 1-year period, The Thai Hip and Knee Society (THKS) has initiated an AP consensus agreement on VTE prophylaxis in knee and hip arthroplasty and hip fracture surgery in Asian patients. Ninety-three orthopedic experts from the AP region volunteered to join the consensus using an overall five-round modified Delphi method. According to the results of these AP consensus statements, one should be aware that some agreed methods of VTE prophylaxis are different

from those published in international guidelines regarding diagnosis and risk factors and methods of prophylaxis in details.

We hope that this AP VTE consensus will provide orthopedic surgeons who practice in the AP region appropriate options for VTE diagnosis and prevention methods that benefit their patients, with fewer complications.

### Author's contributions

The author(s) read and approved the final manuscript

Published online: 29 July 2021

### References

- Edelsberg J, Ollendorf D, Oster G (2001) Venous thromboembolism following major orthopedic surgery: review of epidemiology and economics. Am J Health Syst Pharm 58(Suppl 2):S4-13. https://doi.org/10.1 093/ajhp/58.suppl\_2.S4
- Barrack RL (2012) Current guidelines for total joint VTE prophylaxis: dawn of a new day. J Bone Joint Surg (Br) 94(11 Suppl A):3–7
- Flierl MA, Messina MJ, Mitchell JJ, Hogan C, D'Ambrosia R (2015) Venous thromboembolism prophylaxis after total joint arthroplasty. Orthopedics 38(4):252–263. https://doi.org/10.3928/01477447-20150402-06
- Yassin M, Mitchell C, Diab M, Senior C (2014) The necessity of pharmacological prophylaxis against venous thromboembolism in major joint arthroplasty. Int Orthop 38(5):1073–1075. https://doi.org/10.1007/s002 64-013-2233-6
- Bala A, Murasko MJ, Burk DR, Huddleston JI 3rd, Goodman SB, Maloney WJ, Amanatullah DF (2020) Venous thromboprophylaxis after total hip arthroplasty: aspirin, warfarin, enoxaparin, or factor Xa inhibitors? Hip Int 30(5):564–571. https://doi.org/10.1177/1120700019841600
- Matharu GS, Garriga C, Whitehouse MR, Rangan A, Judge A (2020) Is aspirin
  as effective as the newer direct oral anticoagulants for venous
  thromboembolism prophylaxis after total hip and knee arthroplasty? An
  analysis from the National Joint Registry for England, Wales, Northern
  Ireland, and the Isle of Man. J Arthroplast 35(9):2631–9 e6. https://doi.org/1
  0.1016/j.arth.2020.04.088
- Cha SI, Lee SY, Kim CH, Park JY, Jung TH, Yi JH, Lee J, Huh S, Lee HJ, Kim SY (2010) Venous thromboembolism in Korean patients undergoing major orthopedic surgery: a prospective observational study using computed

Correspondence: areetana@hotmail.com Chulalongkorn University Faculty of Medicine, 1873 Rama IV Road, Pathumwan, Bangkok 10330, Thailand



© The Author(s). 2021 **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/. The Creative Commons Public Domain Dedication waiver (http://creativecommons.org/publicdomain/zero/1.0/) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

- tomographic (CT) pulmonary angiography and indirect CT venography. J Korean Med Sci 25(1):28–34. https://doi.org/10.3346/jkms.2010.25.1.28
- Won MH, Lee GW, Lee TJ, Moon KH (2011) Prevalence and risk factors of thromboembolism after joint arthroplasty without chemical thromboprophylaxis in an Asian population. J Arthroplast 26(7):1106–1111. https://doi.org/10.1016/j.arth.2010.11.005
- Bin Abd Razak HR, Soon AT, Dhanaraj ID, Tan AH (2012) Incidence of clinically significant venous thromboembolic events in Asian patients undergoing total knee arthroplasty without anticoagulation. J Arthroplast 27(6):1128–1132. https://doi.org/10.1016/j.arth.2011.09.024
- Cho KY, Kim KI, Khurana S, Bae DK, Jin W (2013) Is routine chemoprophylaxis necessary for prevention of venous thromboembolism following knee arthroplasty in a low incidence population? Arch Orthop Trauma Surg 133(4):551–559. https://doi.org/10.1007/s00402-013-1691-z

# **Publisher's Note**

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

## Ready to submit your research? Choose BMC and benefit from:

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more biomedcentral.com/submissions

