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Is aspirin enough for venous thromboembolism prophylaxis?

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In early 2023, the PREVENTion of CLots in Orthopedic Trauma (PREVENT CLOT) trial showed that aspirin (ASA) was non-inferior to low-molecular-weight heparin (LMWH) for thromboprophylaxis in patients with extremity fractures.[1] However, despite being cheaper and widely available, widespread adoption of ASA for thromboprophylaxis has not occurred. O'Hara and colleagues therefore devised a scenario-based survey of US orthopedic and trauma providers regarding their adoption of ASA for venous thromboembolism (VTE) prophylaxis among inpatient and outpatient populations.[2] With 287 respondents, the authors found that ASA was prescribed in only 13% of inpatients. ASA slightly outpaced LMWH in the outpatient realm. There was also a clear predilection among providers to select LMWH over ASA in patients with multiple injuries or a higher risk of VTE.

O'Hara *et al* clearly demonstrated a lack of acceptance of the PREVENT CLOT trail's findings. There are many possible reasons for this failure of adoption. In fact, there are entire scientific genres focused on "change management", "implementation science", and "human psychology". The most common factors include a lack of clinical comfort, skepticism of the data, inadequate time for change, fear of negative outcomes, and organizational barriers.[3 4]

Although insightful, O'Hara's survey did not ask providers the reasoning behind their VTE prophylaxis of choice. Trauma surgeons, as opposed to orthopedic surgeons, were less likely to provide ASA as VTE prophylaxis. Perhaps the longer-standing ASA prophylaxis in the elective joint replacement population has swayed orthopedic surgeons. However, the difference could also be related to doubts that ASA is adequate in the more severely injured polytrauma population that trauma surgeons more typically treat. Only 14% of the PREVENT CLOT trial patients had an Injury Severity Score (ISS) >15, perhaps supporting this notion. Finally, LMWH has become more titratable to individual patient characteristics using weight-based dosing and anti-Xa-driven dosing regimens. This practice has been rapidly evolving post the PREVENT CLOT enrollment and may be fueling additional skepticism.

So, what are the next steps? Do we need a study in only severely injured trauma patients? Does the PREVENT CLOT trial need to be repeated with weight-based and anti-Xa-driven dosing of LMWH? For the time being, is ASA just the answer in the outpatient space that historically has seen less VTE prophylaxis use in general? Certainly, ASA has advantages in terms of patient cost and convenience and thus, may even lead to better patient compliance.

We congratulate the authors on their drive to perpetuate the findings of the PREVENT CLOT trial. Continued work to address the challenges of clinical implementation will require continued education, adoption by authoritative bodies in the form of societal guidelines and overcoming local institutional barriers. It would be interesting to repeat the current study at intervals to monitor change and inform clinician psychology.

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REFERENCES

1 O'Toole RV, Stein DM, O'Hara NN, Frey KP, Taylor TJ, Scharfstein DO, Carlini AR, Sudini K, Degani Y, Major Extremity Trauma Research Consortium (METRC). Aspirin or Low-Molecular-Weight Heparin for Thromboprophylaxis after a Fracture. *N Engl J Med* 2023;388:203–13.
2 O'Hara NN, Stein DM, Haut ER, Breazeale S, Frey KP, Slobogean GP, Firoozabadi R, Castillo R, O'Toole RV. Venous thromboembolism prophylaxis prescribing patterns for patients with orthopedic trauma: a clinical vignette survey. *Trauma surg & acute care open* 2024;9:e001511.
3 Amarantou V, Kazakopoulou S, Chatzoudes D, Chatzoglou P. Resistance to change: an empirical investigation of its antecedents. J Organ Change Manag 2018;31:426–50.
4 Purtle J, Marzalik JS, Halfond RW, Bufka LF, Teachman BA, Aarons GA. Toward the data-driven dissemination of findings from psychological science. *Am Psychol* 2020;75:1052–66.