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Commentary: Clinical and financial benefits of intra-articular tranexamic acid in total knee arthroplasty

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Total knee arthroplasty (TKA) is a cost-effective means to treat end-stage knee arthritis. The annual number of TKAs has been increasing worldwide. Various means have been used to reduce blood loss and the incidence of blood transfusion during TKA.[1,2] In TKA patients, the predictors of the need for blood transfusion are preoperative haemoglobin level, intra-operative blood loss, and post-operative drain output.[3] The use of tranexamic acid has gained popularity, partly attributable to the advocacy of fast track surgery.

In this issue, Goyal et al.[4] compared the early clinical outcome in patients who underwent primary TKA with the use of intra-articular TXA. The authors reported a lower transfusion rate and shorter hospital stay in the TXA than control group. The total cost saving with regard to the reduced blood transfusion was AU$144 per patient. Combined with the shortened hospital stay, the total saving was AU$631 per patient. Nonetheless, there is no consensus on the optimal regimen of TXA in TKA. Intravenous, intra-articular, oral, and combined administrations have been reported to achieve satisfactory outcome.[5–8] The decision depends on the surgeon's preference and the cost. Although there are concerns about systemic use of TXA in increasing the risk of hypercoagulation and thromboembolic events, it was safe to use in most patients.

It is worth pointing out that the study by Goyal et al.[4] was a retrospective review of medical records. The TXA group was compared with the historical controls. The preoperative diagnosis and patients' co-morbidities were not clearly documented. The peri-operative care in terms of deep vein thrombosis prophylaxis, rehabilitation and discharge protocol was not standardised. Therefore, the evidence generated is not as strong as that from randomised controlled trials or meta-analyses.

REFERENCES

1. Gee AO, Garino JP, Lee GC. Autologous blood reinfusion in patients undergoing bilateral total hip arthroplasty. J Orthop Surg (Hong Kong) 2011;19:181–4.
2. Simonsen OH, Gorst-Rasmussen A, Simonsen AB, Jorgensen MB, Rathleff MS, Lundbye-Christensen S. Blood reinfusion combined with femoral nerve block in total knee replacement for patients with increased risk of bleeding. J Orthop Surg (Hong Kong) 2011;19:64–8.
3. Yau WP, Tang WM, Ng TP, Chiu KY. Factors leading to blood transfusion among Chinese patients undergoing total knee replacements: a retrospective study. J Orthop Surg (Hong Kong) 2004;12:153–7.
4. Goyal N, Chen DB, Harris IA, Rowden N, Kirsh G, MacDessi SJ. Clinical and financial benefits of intra-articular tranexamic acid in total knee arthroplasty. J Orthop Surg (Hong Kong) 2016:24:3–6
5. Ishida K, Tsumura N, Kitagawa A, Hamamura S, Fukuda K, Dogaki Y, et al. Intra-articular injection of tranexamic acid reduces not only blood loss but also knee joint swelling after total knee arthroplasty. Int Orthop 2011;35:1639–45.
6. Seo JG, Moon YW, Park SH, Kim SM, Ko KR. The comparative efficacies of intra-articular and IV tranexamic acid for reducing blood loss during total knee arthroplasty. Knee Surg Sports Traumatol Arthrosc 2013;21:1869–74.
7. Soni A, Saini R, Gulati A, Paul R, Bhatty S, Rajoli SR. Comparison between intravenous and intra-articular regimens of tranexamic acid in reducing blood loss during total knee arthroplasty. J Arthroplasty 2014;29:1525–7.
8. Wong J, Abrishami A, El Beheiry H, Mahomed NN, Roderick Davey J, Gandhi R, et al. Topical application of tranexamic acid reduces postoperative blood loss in total knee arthroplasty: a randomized, controlled trial. J Bone Joint Surg Am 2010;92:2503–13.