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<b>Title</b>	Selecting and optimising patients for total knee arthroplasty
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# Selecting and optimising patients for total knee arthroplasty

TO THE EDITOR: We read with interest the recent review by Adie and colleagues<sup>1</sup> discussing the optimisation of patients planned for total knee arthroplasty (TKA) and the prevention of adverse post-operative outcomes. However, anaemia, which is a common, major and modifiable risk factor for this patient cohort,<sup>2</sup> was not addressed by the authors.

A recent observational study found pre-operative anaemia — defined as haemoglobin concentration < 130 g/L — in 32% of patients undergoing elective TKA, and, based on the results for the orthopaedic surgical cohort from this study, it is likely that most of these patients were iron depleted.<sup>3</sup> A 2017 single-centre retrospective study similarly reported anaemia in 24% of a similar cohort of patients, and found it was associated with an increased risk of hospital stay in excess of 6 days (unadjusted odds ratio [OR], 1.97; 95% confidence interval [CI], 1.53–2.53;  $P < 0.001$ ), which escalated further and proportionally with decreasing haemoglobin concentration.<sup>4</sup> In another observational study, anaemia was associated with an increased risk of post-operative complications in aseptic revision joint arthroplasty (OR, 1.45; 95% CI, 1.24–1.70;  $P < 0.001$ ), mortality (OR, 2.18; 95% CI, 1.09–4.36;  $P = 0.028$ ), and increased hospital length of stay (adjusted coefficient, 1.02 days; 95% CI, 0.73–1.31;  $P < 0.001$ ).<sup>5</sup>

Perhaps the most compelling argument for the recognition of anaemia in the pre-operative TKA patient is that it is a risk factor that can be addressed even as little as 2–5 days pre-operatively. A retrospective review of ultrashort term parenteral iron supplementation in major orthopaedic surgery suggested intravenous iron reduced allogeneic blood transfusion rates (8.9% v 30.1%;  $P = 0.001$ ), which are a likely contributor to post-operative outcome. Intravenous iron was also associated with reduced length of hospital stay (8.4 days v 10.7 days;  $P = 0.001$ ).<sup>6</sup> Newer parenteral iron preparations are widely used as pre-operative rehabilitative interventions, are characterised by their ease of administration and favourable side-effect profile, and are recommended as part of best practice patient blood management guidelines.<sup>7</sup>

At present, large scale prospective and randomised data assessing the safety and efficacy of iron supplementation for correction of anaemia before elective TKA remain lacking. The importance of this area and the potential capacity for clinical and economic effect warrant both further prospective research and consideration by clinicians practising perioperative medicine.

**Competing interests:** Lachlan Miles, Kate Burbury and David Story are investigators on the NATO (non-anaemic iron deficiency and treatment outcomes in colorectal cancer surgery) study, which has received partial financial support from Vifor Pharma.

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