Abstract Number: 10957

JOURNAL OF THE JFA Foot & Ankle

Kirschner wires versus cannulated screws for hallux valgus correction (bunion) through the minimally invasive Chevron-Akin technique: A two-year randomized controlled trial

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Introduction: Hallux valgus (HV) is a painful lateral deviation of the great toe and medial deviation of the first metatarsal of the foot, affecting almost 20% of the general population. Minimally invasive surgery can correct the deformity using cannulated screws or Kirschner wires. This trial evaluated the efficacy and safety of the two fixation methods with a two-year follow-up.

Methods: This was a randomized, open and parallel clinical trial, conducted in a single orthopedic hospital, with a superiority framework. We randomized 40 adult patients with moderate to severe HV to be operated on using K-wires or cannulated screws for fixation. Patients allocated to K-wires group returned in six weeks for wire removal (which prevented blinding). We evaluated function and radiographic HV correction as primary outcomes, and pain, satisfaction, degenerative changes in two years, and adverse effects secondarily. Brazilian Registry of Clinical Trials (ReBEC) RBR-107ynv85.

Results: From 2021 to 2022, 64 patients were admitted for HV surgery and 40 were randomized. We lost 6 patients for follow-up, 3 in each group. All radiographic outcomes changed positively across time, with no significant difference between groups. Function and pain scores also improved, with function scores higher in the K-wires group at 6, 12, and 24 months ($p < 0.001$). There was no relevant degeneration at 24 months. Of the 7 adverse events registered, 6 were in the cannulated screws group.

Conclusions: No significant difference was found between the two implants regarding clinical, radiographic, safety, functional, and late degenerative outcomes.

Keywords: Hallux valgus; Bunion; Mica, Minimally Invasive Surgical Procedures.

DOI: https://doi.org/10.30795/jfootankle.2026.v20.2074

This abstract was presented at the XXII Brazilian F&A Meeting 2026, held in São Paulo, Brazil, from April 18 to 21, 2026.