

Anna Majapuro-Hirvonen, RN, BSc, MBA, **Jasmin Bosshard, MSc**, and Brent Rutland, MPH, MBA.
KORU Medical Systems, Medical and Clinical Affairs, Mahwah, NJ, United States of America.

Background and Aims

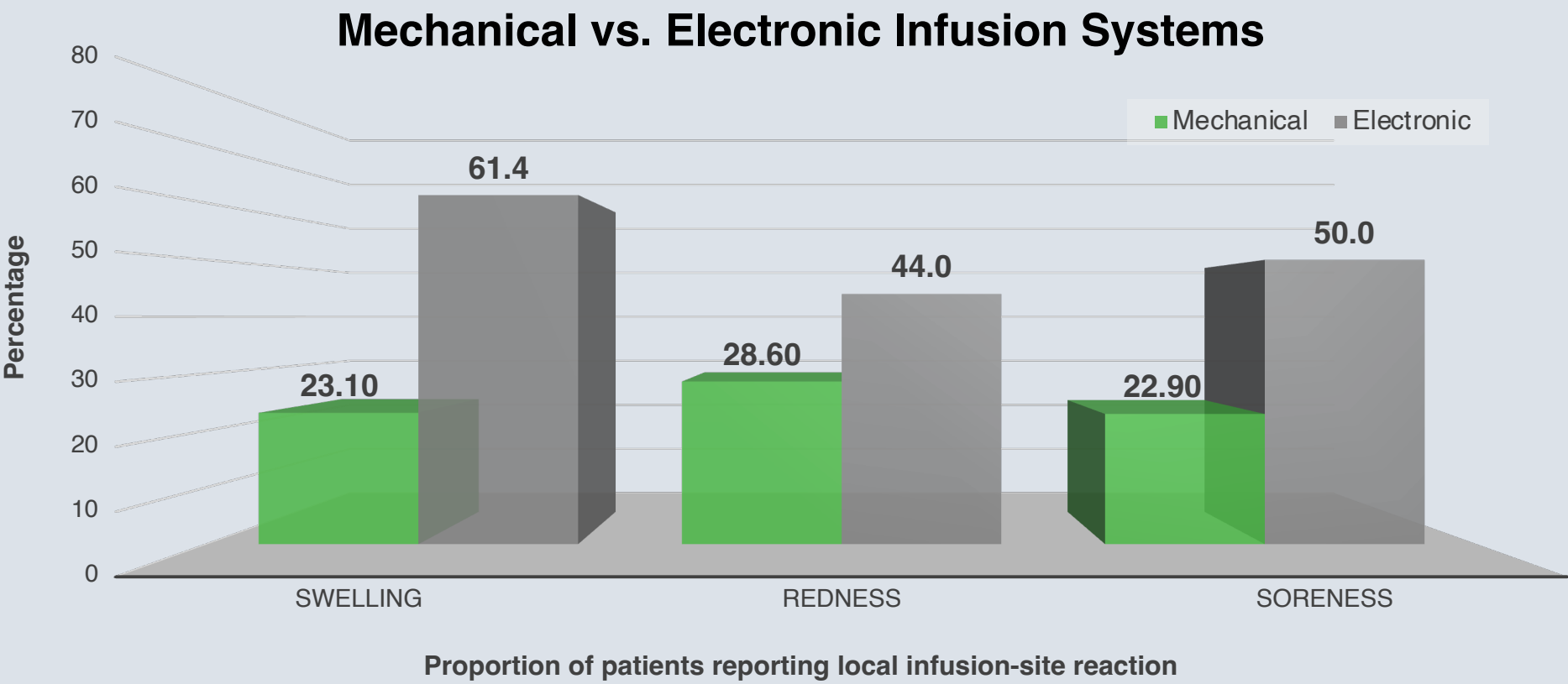
To compare spring-driven mechanical and electronic infusion systems used for subcutaneous immunoglobulin (SCIg) therapy in patients with primary or secondary immunodeficiency (PID, SID) and chronic inflammatory demyelinating polyneuropathy (CIDP), focusing on local infusion-site reactions and reliable dose delivery.

METHODS

A structured literature review was conducted (PubMed, Cochrane Library, ClinicalTrials.gov; April 6, 2025). Eligible studies reported safety outcomes. As direct measures of dose delivery were not consistently reported, performance was evaluated using pharmacodynamic response, with immunoglobulin G (IgG) levels at study end considered an indicator of successful dose delivery. Data were extracted and descriptively aggregated across studies. Risk of bias was appraised using validated tools appropriate to study design.

RESULTS

- Fourteen studies met the inclusion criteria (4 mechanical, 10 electronic).
- Mechanical infusion systems were associated with lower proportions of local infusion-site reactions, including swelling (23.1% vs 61.4%), redness (28.6% vs 44.0%), and soreness (22.9% vs 50.0%).
- Variability across studies was substantial, reflecting differences in patient populations, IgG formulations, and reporting methods.
- Exploratory analyses suggested that age, IgG concentration, and year of publication may influence reported outcomes.
- Across studies, both mechanical and electronic infusion systems achieved IgG levels consistent with therapeutic targets.



CONCLUSIONS

Mechanical infusion systems were associated with lower reported rates of local infusion-site reactions compared with electronic infusion systems in this descriptive synthesis, while both achieved IgG levels consistent with adequate dose delivery. Although variability warrants cautious interpretation, the overall pattern suggests a favorable tolerability profile for mechanical systems. Device selection should remain individualized, and further comparative research is warranted.