

Clinical and Health Service Value of Liposomal Bupivacaine in Enhanced Recovery After Anal Fistula Surgery

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Abstract

Postoperative pain after anal fistula surgery may interfere with early ambulation and defecation, increase rescue analgesic requirements, prolong hospitalization, and contribute to greater healthcare resource utilization. However, the clinical effectiveness and healthcare resource implications of long-acting local infiltration analgesia within enhanced recovery after surgery (ERAS) pathways for anal fistula surgery remain insufficiently characterized. This single-center prospective cohort study included 160 patients undergoing anal fistula surgery who were classified according to the local infiltration analgesic received in routine clinical practice: liposomal bupivacaine or 0.5% ropivacaine, with 80 patients in each group. The primary outcome was cumulative pain burden over the first 48 postoperative hours. Additional outcomes included pain scores at prespecified time points, pain during first defecation, rescue analgesic use, length of hospital stay, hospitalization costs, 30-day unplanned healthcare utilization, and adverse events. Compared with ropivacaine, liposomal bupivacaine was associated with a significantly lower cumulative pain burden during the first 48 postoperative hours ($P = 0.036$). Between-group differences in pain scores at 6, 24, and 48 h exceeded the prespecified minimal clinically important difference. Liposomal bupivacaine was also associated with a 1.72-point reduction in pain during first defecation, an 8.0-h longer time to first rescue analgesia, a lower rescue analgesia rate (42% vs 63%), and a 1.4-day shorter hospital stay. These clinical improvements were not accompanied by increases in total hospitalization costs, 30-day unplanned healthcare utilization, or adverse events. Within an ERAS pathway for anal fistula surgery, liposomal bupivacaine was associated with reduced postoperative pain burden, lower rescue analgesic requirements, and shorter hospitalization without increasing overall healthcare costs or short-term safety risks. These findings provide clinically relevant evidence to support optimization of perioperative analgesic strategies and healthcare resource allocation in this surgical population.

Keywords

Anal Fistula, Liposomal Bupivacaine, Ropivacaine, Local Infiltration Analgesia, Enhanced Recovery After Surgery, Health Services