



Surgical Prophylaxis Duration with a Drain

Antibiotic prophylaxis is routinely used in many surgical procedures to decrease the risk for surgical site infections. Typically, a single pre-operative dose is recommended with discontinuation following closure of the skin.¹ Drains are sometimes placed following some surgeries to decompress fluid collection but may serve as a pathway for inoculating bacteria. What is the recommended duration of antimicrobial prophylaxis when a drain is placed?

What do guidelines recommend?

The 2017 Centers for Disease Control and Prevention (CDC) surgical site infection prevention guidelines recommend that in clean and clean-contaminated procedures, antimicrobial prophylaxis is stopped after the surgical incision is closed in the operative room, **even in the presence of a drain.**¹ The 2022 Society of Healthcare Epidemiology/Infectious Diseases Society of America/Association of Professionals in Infection Control and Epidemiology guidelines provide the same recommendation.²

What is the evidence?

In a single blinded, randomized controlled trial that compared prophylactic antibiotics for 24 hours vs. prophylactic antibiotics for the duration of drain placement in patients undergoing spinal surgery, no difference in surgical site infection rate was demonstrated between groups. Surgical site infections occurred in 21/170 (12.4%) patients in the 24 hours group vs. 19/144 (13.2%) in the drain duration group (p = 0.48).³

In a meta-analysis comprised of 7 studies with a total 2446 patients undergoing spine surgery, no difference in deep surgical site infections occurred between groups that received prolonged prophylactic systemic antibiotics (>24 to 72 hours or duration of drain placement) vs. those who received a short course (≤ 24 hours). Deep surgical site infections occurred in 45/1149 (3.9%) and 46/1297 (3.5%) in the prolonged and short groups, respectively.⁴

What is the harm?

In a large study with over 70,000 patients, acute kidney injury (AKI) and *C. difficile* infection risk was examined among patients receiving different durations of antibiotic prophylaxis.⁵ Three groups of longer durations (24 to <48 hours, 48 to <72 hours, and ≥ 72 hours) were compared to the reference group of patients receiving <24 hours of post-operative antibiotic prophylaxis.

Post-Op Prophylaxis Duration and Associated Harms			
	24 to <48 hours	48 to <72 hours	≥ 72 hours
Number needed to harm for AKI	9	6	4
Number needed to harm for <i>C. difficile</i> infection	2000	90	50

Key Takeaway: Continuing prophylactic antibiotics beyond 24 hours post-operatively when a drain is present does not reduce surgical site infections and increases harm.

References:

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