Kentucky Antimicrobial Stewardship Innovation Consortium

Educational Pearl

Stopping Antibiotics in Intra-Abdominal Infections

Intra-abdominal infections should be managed with a combination of source control (e.g. surgery, percutaneous drainage) and antimicrobial therapy. After successful source control, how long should antibiotics be administered?

What do guidelines recommend?

The 2024 Surgical Infection Society Intra-abdominal Infectious Guidelines recommend limiting antimicrobial therapy to **no more than 4 full days** for patients with adequate source control procedures, including those achieved with percutaneous drainage. This applies to patients with diabetes, obesity, and sepsis. It is suggested to limit antimicrobial therapy to eight days after achieving source control in ICU patients requiring mechanical ventilation or vasopressors after achieving source control.[1]

What is the evidence?

Four days after source control is based on the STOP-IT trial, an open-label, multicenter, randomized controlled trial. The STOP-IT trial compared a fixed duration of 4 ± 1 days following source control with control patients receiving antibiotics until 2 days after resolution of fever, leukocytosis, and ileus. The median duration of antibiotics in the control group was 8 days (IQR: 5 – 10 days). The primary composite outcome of surgical site infection, recurrent intra-abdominal infection, and death within 30 days occurred in 58/260 (22.3%) patients in the control group and 56/257 (21.8%) patients in the 4 day group (p=0.92). Notably, time to diagnosis of surgical site infection (8 days vs 15.1 days, p<0.001) and recurrent intra-abdominal infection (10.8 days vs 15.1 days p<0.001) were lower in the 4 day group, suggesting a benefit with earlier time to detection and therefore subsequent management.[2]

Eight days after source control is supported by the DURAPOP study, an open label, multicenter, randomized controlled trial that compared 8 vs 15 days of antibiotics in patients with postoperative intra-abdominal infections admitted to the ICU. No difference was seen in mortality, ICU length of stay, hospital length of stay, emergence of MDR bacteria, or reoperation rate.[3] Clinical failure rates were 14% and 24% in the 15 and 8 days arms, respectively, but this was not statistically significant (p=0.54). Patients had greater severity of illness in the DURAPOP study when compared to the STOP-IT trial as evidenced by mortality rates of 11-15% in the DURAPOP study compared to ~1% in the STOP-IT trial.

Key Takeaway: Antibiotics can be stopped 4 days after adequate source control in most patients with intra-abdominal infections. In patients who require ICU admission for mechanical ventilation and/or vasopressors, antibiotics can be stopped 8 days after adequate source control. Clinical failure may occur up to a quarter of patients regardless of initial antibiotic duration and may require additional source control attempts and/or antibiotic therapy.

References:

1. Huston JM, Barie PS, Dellinger EP, et al. The Surgical Infection Society Guidelines on the Management of Intra-Abdominal Infection: 2024 Update. *Surg Infect (Larchmt)*. Published online July 11, 2024. doi:10.1089/sur.2024.137
2. Sawyer RG, Claridge JA, Nathens AB, et al. Trial of short-course antimicrobial therapy for intraabdominal infection [published correction appears in N Engl J Med. 2018 Feb 15;378(7):686. doi: 10.1056/NEJMx180006]. *N Engl J Med*. 2015;372(21):1996-2005. doi:10.1056/NEJMoa1411162
3. Montravers P, Tubach F, Lescot T, et al. Short-course antibiotic therapy for critically ill patients treated for postoperative intra-abdominal infection: the DURAPOP randomised clinical trial. *Intensive Care Med*. 2018;44(3):300-310. doi:10.1007/s00134-018-5088-x

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