



2020 Annual Meeting

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5. A COUNTERCULTURE MOVEMENT: CHARACTERIZING THE PROGNOSTIC UTILITY OF OBTAINING WOUND CULTURES IN SURGICAL SITE INFECTIONS

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Background: Surgical site infections (SSI) account for 15% of all nosocomial infections. Traditionally, incisional SSI are managed with cultures and antibiotics, although local wound care only (opening) has also been suggested. We hypothesized that, when controlling for other variables, obtaining cultures would not affect outcomes.

Methods: All incisional SSI from general surgery patients treated as inpatients at a single institution between 1997 and 2017 were included for analysis. Demographics and in-hospital mortality were compared by Student's t-test and Chi-square analysis. Independent predictors of in-hospital mortality, including the acquisition of wound cultures, were determined by multivariate logistic regression analysis (MV).

Results: In total, 2,054 SSI were identified: 1,077 (52.4%) with cultures and 977 (47.6%) without. The most common bacteria isolated were *Staphylococcus aureus*, *Enterococcus faecalis*, and *Escherichia coli*. By univariate analysis, obtaining cultures was associated with a higher severity of illness/APACHE II score (12.4 ± 0.2 vs 8.8 ± 0.2 ; $p < 0.0001$), prior transfusion (65.1% vs 34.9%, $p < 0.0001$), and immunosuppressed status (60.9% vs 39.1%, $p < 0.0001$). Regarding outcomes, obtaining cultures was associated with antibiotic use (97.0% vs 88.7%; $p < 0.0001$), longer antibiotic course (13.8 ± 0.3 days vs 9.1 ± 0.2 days; $p < 0.0001$), greater length of stay after intervention (17.4 ± 0.8 days vs 9.7 ± 0.5 days; $p < 0.0001$), and increased crude mortality (8.6% vs 4.2%; $p < 0.0001$).

Using MV analysis, factors independently predicting mortality included years of age (Odds Ratio 1.03 [95% Confidence Interval 1.02-1.05], $p < 0.0001$), APACHE II score (OR 1.17 [95% CI 1.14-1.21], $p < 0.0001$), days from operation to diagnosis (OR 1.01 [95% CI 1.01-1.02], $p < 0.0001$), and initial diagnosis of SSI after discharge (OR 4.98 [95% CI 2.18-11.35], $p < 0.0001$). Obtaining cultures (OR 1.04 [95% CI 0.65-1.64], $p = 0.88$) was not associated with mortality. Model ROC AUC C statistic = 0.88, Hosmer-Lemeshow test = 0.43.

Conclusion: Routinely obtaining cultures from infected surgical incisions does not change overall outcome and should be reserved for special circumstances, such as significant prior antibiotic exposure. Whether antibiotics are necessary to treat these infections remains an unanswered question.