Dilute Betadine Lavage With or Without Intrawound Vancomycin is an Extremely Cost-Effective Method of Infection Prophylaxis for Instrumented Thoracolumbar Surgery

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INTRODUCTION: Spine surgeons continue to explore methods for reducing surgical site infections following instrumented thoracolumbar procedures. Several techniques have emerged for decontaminating the wound bed prior to closure, such as applying diluted povidone-iodine (Betadine), antibiotic powders, or both.

METHODS: A break-even analysis was used to determine cost-effectiveness, which included variables for rate of infection, cost of irrigation and debridement, and cost of Dilute Betadine with or without the concomitant use of vancomycin powder. The formula yields a final, break-even infection rate that would need to be obtained with the use of the prophylactic agent in order to break-even on cost. The difference between the final infection rate and initial infection rate provides the absolute risk reduction (ARR). ARR was calculated along a range of theoretical costs of irrigation and debridement and infection rates given the high variability of these values in practice.

RESULTS: Costing $2.54, dilute Betadine would need to reduce a reoperation rate of 1.8% due to infection by an ARR of 0.0098% to break-even on cost. Meanwhile, 1g vancomycin powder at $20.64 would require an ARR of 0.080%. Using both dilute Betadine and 1g vancomycin powder at $23.18 results in an ARR of 0.089%. Reducing the cost of treating a surgical site infection to a theorectical low of $10,000 increases the ARR for the combined prophylactic regimen of both dilute Betadine and vancomycin to 0.23%. Furthermore, adjusting the initial rate of infection does not affect the ARR for any prophylactic method.

DISCUSSION AND CONCLUSION:

Dilute Betadine and vancomycin powder, whether used independently or in combination, are extremely cost-effective means of infection prophylaxis in instrumented thoracolumbar surgery. Only 1 infection would need to be prevented among 1,124 instrumented thoracolumbar surgeries with the combined use of Betadine and vancomycin powder in order to break-even on cost.