

An Experimental Study: Which Method is the Most Effective for Preventing Postoperative Infection in Spinal Procedures?

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Introduction

Several methods have been used to reduce the infection rate in spinal surgeries with instrumentation.

In the present study, the efficiency of antibiotic prophylaxis, silver-plated screws, and local rifamycin application to the surgical site were investigated in an experimental animal model. Staphylococcus aureus was used as the pathogen.

Methods

This study was performed with the approval of the Experimental Animals Ethics Committee at the local Experimental and Clinical Research Center. In the present study, 50 six-month-old female Wistar albino rats were used. The animals were randomly numbered and divided into five groups of 10 rats each (Group 1: control group; Group 2: titanium screw and S. aureus inoculation; Group 3: titanium screw, 0.1 ml rifamycin application to the surgical area, and bacterial inoculation; Group 4: titanium screw, single pre-operative dose of IM cefazolin, and bacterial inoculation; Group 5: silver-plated screw and bacterial inoculation). Titanium micro-screws were placed into the pedicles (figure 1,2). The control group received a sterile isotonic solution, and the other four groups received bacterial suspensions containing S. aureus. The animals were sacrificed 15 days later. The samples were evaluated for microbiological and histological findings.

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Results

Intensive S. aureus growth was observed in all



Conclusions

Our study suggests that rifamycin application to the surgical area in spinal operations with instrumentation is an effective method to prevent S. aureus infections.

Learning Objectives

By the conclusion of this session, participants should be able to identify more effective prophylaxy against post-operative infections

