Locally delivered vancomycin and tobramycin does not result in toxic serum levels: preliminary results from the ABOGRAFT trial.

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Background

Local delivery of antibiotics has proven a very effective prophylactic strategy against prosthetic joint infections due to the very high local concentrations of antibiotics in the joint. Monitoring and understanding whether these high local concentrations might result in toxic serum levels is imperative. In this study we describe the preliminary results of locally administered vancomycin and tobramycin on serum levels and creatine clearance collected as part of the ABOGRAFT trial (abograft.se).

Method

Ten patients scheduled for total hip replacement surgery were randomized to receive either vancomycin 1g diluted with 6 ml of tobramycin (80mg/ml) and 2 ml of saline, or a placebo (8ml of saline) mixed with morselized bone graft used to treat bone defects in revision total hip replacement. Venous blood samples were taken between 12 and 24 hours after surgery and creatine clearance was compared pre-, and post-operatively.

Results

Serum levels of vancomycin and tobramycin did not exceed established therapeutic threshold (e.g., 10mg/L for vancomycin or 2mg/L for tobramycin) when administered intravenously. Creatine clearance levels did not differ pre- and post-operatively, nor were there differences between those treated with and without antibiotic impregnated bone graft.

Conclusion

Preliminary results indicate that serum toxicity is not reached when antibiotic impregnated bone graft is used in the current concentrations as a prophylactic in patients scheduled for total hip replacement surgery. Additional analysis including more patients is ongoing.