

Impact of Antimicrobial Dipping Solutions on Post-Operative Infection Rates in Diabetic Patients Undergoing Primary Insertion of a Coloplast Titan Inflatable Penile Prosthesis

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Introduction: Penile prostheses (PP) that are dipped in antimicrobial solutions can be specially selected by the implanter and tailored towards the patient. The best choice for antimicrobial solution is widely debated and remains a surgeon's preference.

Objective: We conducted a multi-institutional study of diabetic patients undergoing primary Coloplast Titan PP implantation and compared post-operative outcomes based on the antimicrobial solutions used for dipping.

Methods: Between April 2003 and May 2018, data was collected from 18 different institutions, and charts of 473 patients with diabetes receiving primary PP implantation with Coloplast Titan devices were reviewed. Antibiotics and antifungals used for device impregnation were recorded for each patient. Primary outcome was post-operative infection rate and secondary outcomes were explantation and revision rates. Patients had a median follow-up time of 7 months (range: 0 – 157). Patients were included in the analysis only if they had complete information regarding peri-procedural antimicrobial dip use and the above mentioned outcomes. Univariate comparisons of proportions were completed for rates of infection, explantation, and revision between different antimicrobial regimens.

Results: Overall, 468 patients had complete information and were included. The total number of infections, explantations, and revisions were 15 (3.3%), 18 (4.0%), and 27 (6.0%), respectively. Vancomycin + Gentamicin dipping solution was used in 276 devices, 177 devices were dipped in Gentamicin + a different antibiotic solution, of which 143 were dipped in Rifampin + Gentamicin. When comparing the number of infections, those dipped with Vancomycin + Gentamicin had significantly lower infections (1.4%) than those with Gentamicin + a different antibiotic (5.6%, $p = 0.014$), and those with Rifampin + Gentamicin (5.6%, $p = 0.014$). There was no significant difference in infections when comparing implants that were dipped in Rifampin (158) vs. no Rifampin (310), ($p = 0.057$). In our cohort, 190 patients had an antifungal used in their dipping solution (Amphotericin) and 278 did not. In the group that had antifungals, there were 5 (2.6%) recorded infections compared to 11 (4.0%) in the group of patients that did not receive any antifungals ($p = 0.414$).

Conclusion: The use of a Vancomycin + Gentamicin antibiotic dip seems to provide the greatest protection against post-operative infections compared to other antibiotic dips in diabetic patients. The use of antifungal dips, however, does not seem to provide an increased protection against post-operative infections in diabetic patients.