

A randomized, controlled study to investigate the efficacy and safety of a topical gentamicin-collagen sponge in combination with systemic antibiotic therapy in diabetic patients with a moderate or severe foot ulcer infection, Uçkay, et al. BMC Infectious Diseases. August 2nd, 2018

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Level of Evidence: 1

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Diabetic Foot Ulcer Infections (DFUIs) are becoming more prevalent and require frequent follow up. Whilst treating DFUIs, multidisciplinary management has proven the most evidence based results, and even then a small percentage of DFUIs still do not respond to treatment. Many auxiliary approaches have therefore emerged to treat unresponsive DFUIs. Hyperbaric chambers, patient education and combination treatments with systemic antibiotics and local antiseptics have been used on small study sets. In a previous study, the use of a topical collagen sponge combined with gentamicin while patients were on systemic antibiotics was studied in the hopes of a clinical cure in 7 days. The sponge in combination with systemic antibiotic showed efficacy in eradicating pathogens and produced a higher cure rate. Though the results are significant, the study set was restricted to a very small group over a small period of time. The purpose of this study was to reexamine the benefits of the collagen-gentamicin sponge in a larger single center study to obtain reliable results.

A randomized, single-center investigator blinded control study was conducted for 88 diabetic foot ulcer infection patients to compare the use of gentamicin-sponge infused with systemic antibiotics in 43 patients versus antibiotics alone in the control population of 45 patients. Patient selection was conducted under parameters of fasting glycemia levels, hemoglobin A1 levels, the American Diabetes Association and IDSA foot infection guidelines. Each diabetic foot ulcer infection was then assessed by wound depth, size, degree of undermining, tenderness, induration, erythema, pain, warmth and exudate. Patients were assessed weekly for up to 28 days. Statistical analysis was performed using the Pearson- χ^2 -test, Fisher exact, and the Wilcoxon-ranksum-test, and finally STATA software.

For 64 of the patients with diabetic foot ulcer infections clinical cure was attained. Out of the remaining patients, 13 showed significant improvement, 7 were classified as stagnant and 4 worsened. No significant difference was found in the rate of infection eradication in patients with gentamicin sponges compared to the control patients that did not receive gentamicin sponge treatment. A decreased wound score was noted in the final visit, and was found to be more rapid in patients that received gentamicin-collagen sponge treatment. Both gentamicin-collagen sponges and saline dressings were tolerated well.

In this randomized, controlled trial, there was no significant difference in the rate of clinical cure between the gentamicin-collagen sponge patients and those who did not receive the sponge. Previous studies interestingly showed pronounced ulcer healing in the gentamicin patients compared to the saline patients, with one showing healing time two weeks faster in gentamicin sponge patients. Further studies with larger population groups, over longer durations, are required to understand what treatment modalities could be best for diabetic foot ulcer infections.



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