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Diabetic Foot Infection before and after Surgery and their impact on healing and amputation

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Introduction: There is agreement that diabetic foot infection represents a high risk for limb and life of diabetic patients. We investigated the course of healing in respect to wound infection and evaluated factors that might favor wound infection in diabetic patients.
Patients and Methods: Patients were treated according to a standardized wound care protocol. In total, 1000 patients were included in this study. Mean age was 68±11 years. Follow-up was documented within a special wound documentation system. Wound infection was defined by clinical criteria. We distinguished primary wound infection at the first visit (Primary WI) and postoperative wound infection (Postop. WI). The probability for healing or amputation was calculated by Kaplan Meier analysis and differences were calculated with the log rank test. Impact factors for the incidence of wound infection were calculated by the Chi-Quadrat test. Data is given as mean±SD .
Results: Mean time of follow-up was 110±111 days and wound history 142±674 days (21%>120 days). Sharp debridement was performed in 100%, bone resection in 13.6%, minor amputation in 9.9% and major amputation in 2.6%. There were 35% recurrent ulcers, 35.6% toe, 64.4% foot ulcers, in 26.9% bone was exposed, in 34.6% pedal pulses were not palpable and mean ulcer size was 4.76±12.16cm^2 (48% >1cm^2).
Primary WI (35%): Probability for healing was not affected (p=0.53). There was an increased probability for minor amputation (p=0.0001) but not for major amputation (p=0.40). Infection rate was increased for ulcers with bone involvement (p=0.001), toe ulcers (p=0.0001), ischemia (p=0.0001) and larger ulcers (p=0.007).
Postop. WI (20%): Probability for healing was decreased (p=0.0001). There was no difference in respect to minor (p=0.10) or major amputation (p=0.31). Infection rate was increased for toe ulcers (p=0.002), large (p=0.001), recurrent (p=0.029) and multiple (p=0.027) ulcers.
Conclusion: According to our data, the probability for major amputation was not increased by neither initial nor postop. WI. The probability of healing was significantly affected exclusively by postop. but not initial wound infection. We conclude that initial and postop. WI have a different impact factors on healing.