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Safety and efficacy of a dermal substitute in the coverage of cancellous bone after surgical debridement for severe diabetic foot infection

*M.Fabbi, *A.B. Sganzeroli, *I.Pogliaghi, * P.Cavaiani, + R. Ferraresi, + M. Centola * F.Capello
*°C.Caravaggi *Dept. of Diabetic Foot Pathology Abbiategrasso Hospital Abbiategrasso (Italy)
°University Vita Salute San Raffaele Milano (Italy) +¹Division of Cardiology, Fondazione IRCCS, Ospedale Maggiore Policlinico, Mangiagalli e Regina Elena, Milan (Italy)

Infection of diabetic foot represents a frequent complication both in neuropathic and neuroischemic diabetic patients. Since delay in treatment is often the cause of deep infection with the involvement of joint and bone structures the emergent treatment consist of wide and sharp debridement with consequent bone exposition. Due to the lack of large part of the skin the definitive surgical procedure often consists in very proximal amputation., in case of infection of forefoot and midfoot, an removal of great part of the heel in case of osteomyelitis. In order to perform a less severe amputation of the foot we have employed a dermal substitute to cover exposed bones. In the period from September 2006 to February 2008 24 patients were treated for severe deep infection of the foot: in 7 patients we performed a open midfoot amputation (3 TMA, 5 CHOPART) 8 patients were submitted to open partial calcaneotomy for heel ulcer with osteomyelitis of the os calcis, 7 patients were submitted to open forefoot amputation and in 1 patient an open Syme amputation was performed. 18 out of 23 patients who presented CLI with TcPO₂ < 30 mmHG were submitted endoluminal revascularisation procedures. In 50% of the patients we applied NWPT therapy since the ulcers were clean. Consequently all the patients were submitted to a second surgical look that consisted of debridement of soft tissue and exposition of bleeding cancellous bone.. After a careful haemostasis a dermal substitute (Hyalomatix Fab Abano Terme Italy), constituted by 100% Hyaluronic Acid Benzil Esther was applied obtaining complete coverage of the wounds. A compressive secondary dressing made by grease gauze was applied in all the patients. The dressing was changed weekly in all the patients during the clinical control at Diabetic foot Centre. We obtained a complete coverage of the exposed cancellous bone in 21 out of 23 patients in a period of 28 ± 17 days of treatment. We followed the patients for a period of 176 ± 141 days observing complete healing of the surgical wounds in 10 out of 23 patients (4 patients treated by skin graft and 6 patients healed by secondary intention); the remaining 13 patients are healing by second intention. During the follow up period one patients were submitted to above the knee amputation due to recurrence if foot infection and severe ischemia .One patient was lost at follow up. Two patients died during the follow up period for myocardial infarction. **Conclusion:** this preliminary data demonstrate the safety and efficacy of this new dermal substitute in coverage of cancellous bone after wide surgical debridement for deep infection of the foot allowing to obtain a more conservative surgical procedure.