

Total contact cast for pressure relief in diabetic foot ulcers—provisional results of a multicentre prospective clinical evaluation in Germany

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Introduction

Effective pressure relief is an essential component of therapy for diabetic foot ulcers. The total contact cast (TCC) is a method for pressure relief that is well documented in literature. In Germany, the TCC is still relatively uncommon, although it is cited as a method of pressure relief in the practical guideline on „Diabetic Foot Syndrome“ by the DDG (Deutsche Diabetes Gesellschaft, German Diabetes Association)¹. The present multicentre prospective clinical evaluation was conducted at six DDG-certified foot treatment facilities to verify the efficacy and usability of the TCC in patients with diabetic foot ulcers.

Method

To date, a total of 42 neuropathic foot ulcers, Wagner grade ≤ 2 , at least one palpable foot pulse or ABPI > 0.8 , no infection, have been treated in this prospective clinical evaluation. The average wound size was 2.32 cm² (SD: \pm 4.94 cm², min. 0.04, max. 9.90 cm²), wound healing before TCC treatment had stagnated on average 264 days (SD: \pm 296 days, n=37). Treatment was administered on an outpatient basis; it involved a combination of phase-specific moist wound management and pressure relief by means of a TCC consisting of a fibreglass cast (Cellacast®Xtra) in bivalve technique to ensure problem-free wound control / wound management. Depending on the specific circumstances at the individual facilities, the TCC was fitted either by a wound care specialist, an orthopaedic shoemaker, a diabetologist, or in cooperation with the hospital's orthopaedic ward.

Result

38 ulcers had completely healed after an average period of 34 days (SD: \pm 21 days; minimum 7 days, maximum 114 days). TCC treatment had to be prematurely discontinued in a total of 4 patients due to either pain in the leg (1 pat.), infection involving an indication for amputation (1 pat.), or reasons of compliance (2 pat.).

Summary

The fast healing rates achieved with a TCC in these ulcers—some of which had persisted up to for 4 years—are convincing. With professional guidance, the application of the TCC can be easily learned and performed even at foot treatment facilities of a predominantly internistic character. Close monitoring of patients for early detection of potential complications (e.g. development of new pressure points) has shown to be beneficial particularly in the initial phase of TCC treatment. The greater amount of time required to prepare the TCC is justified by the fast healing of the ulcers and the fact that patients can be treated on an outpatient basis. With a view to recurrence prophylaxis, it is indispensable that patients be fitted with adequate orthopaedic footwear once their ulcers have healed.

Reference

1. Morbach S, Mueller E, Reike et al. Diabetisches Fußsyndrom. Scherbaum WA (ed.). Diabetologie und Stoffwechsel 2006; 1 Suppl 2: S224-229, Georg Thieme Verlag KG Stuttgart, New York

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Fig. 1: Bivalved TCC, right picture with Cellona® Shoe.



Fig. 2 A: Case report from the Hospital of the „Barmherzige Brüder, Trier.



Fig. 2 B: Case report from the Diabetic foot outpatient division of the Hegau-Bodensee clinic, Radolfzell.



Fig. 2 C: Case report the Diabetes practice of Blankenese and the Asklepios West Clinic, Hamburg.



Fig. 2 D: Case report from the Diabetes clinic of Bad Mergentheim.



Fig. 2 E: Case report from the Outpatient diabetes divisions of the Dortmund GmbH clinic.

Fig. 2: Foto documentation from five patients.