O6

Wound lactate concentration: a biochemical marker suitable for diagnosing soft tissue infection in diabetic foot ulcers?

Löffler M, Zieker D, Weinreich J, Simonys S, Königsrainer A, Beckert S

Introduction: Wound infection is a major risk factor for non-healing and amputation in diabetic foot ulcers. However, accurate diagnosis of infection remains challenging in clinical practice. The aim of the study was to test the hypothesis that high wound lactate concentrations are associated with an increased risk of soft tissue infection in diabetic foot ulcers. **Methods:** Consecutive patients attending the outpatient wound care center of the Department of Surgery, University of Tübingen, Germany were enrolled in the study. Local wound therapy and prospective follow-up were performed according to a comprehensive wound care protocol. Wound fluid was collected by special wound swabs. Wound fluid lactate concentration was determined by a lactate analyzer. Soft tissue infection was defined by the presence of at least two clinical signs. Results are presented as median [min-max]. A $p<0.05$ was defined as significant. **Results:** 96 diabetic patients with a median age of 73 [46-89] years were enrolled. Median wound size was 11.03 [0.19-141.98] cm^2. In 28% there was positive probing to bone and in 73% peripheral pulses were not palpable. Wounds were categorized as infected in 41%. Wound lactate levels were significantly higher in infected 27.57 [7.14-80.40] mM compared with non-infected ulcers 18.57 [6.15-50.34] mM ($p=0.002$). In non-infected ulcers, however, there was no difference in lactate levels with respect to the presence of peripheral pulses (19.26 [7.74-50.34] vs. 18.12 [6.15-47.79]; $p=0.619$). **Conclusions:** Diabetic foot ulcers are characterized by high tissue lactate concentrations independent of the presence of palpable peripheral pulses. Assessment of wound lactate might be helpful for confirming the diagnosis of soft tissue infection especially when clinical signs are not marked.