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10 years' experience with negative pressure wound therapy in patients with diabetic foot - audit of indications and outcomes

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Background and aims: Previous studies showed that negative pressure wound therapy (NPWT) is an effective method for the treatment of patients with diabetic foot. The aim of our study was to assess the effect of NPWT on diabetic foot healing, compare indications and outcomes of treatment between two 5 years periods and identify factors contributing to failure of this method. **Patients and methods:** 146 patients with diabetic foot hospitalized in our Diabetes Department were treated by NPWT between May 2003 and May 2013 (39 patients between 5/2003-4/2008 and 107 patients between 5/2008-4/2013). The success of NPWT was defined as a complete wound healing during 6 months follow-up; the unsuccess as a premature termination of NPWT (worsening of the wound/no effect), non-healing, major amputation or intolerance of the treatment by patient during 6 month follow-up period. In all patients, factors which could influence wound healing were evaluated: age, type of diabetes, duration of diabetes, diabetes control (HbA_{1c}), presence of infection, ischemia, Charcot foot, renal failure and other comorbidities, but also local factors (wound localization, size, exposed bone etc.). Uni- and multivariate analyses were used to identification of factors contributing to failure of NPWT. **Results:** Patients in both periods were comparable in age, duration of diabetes, type of diabetes and other basic characteristics. No significant difference was seen in success of NPWT on healing between 5/2003-4/2008 and 5/2008-4/2013 (69.2% vs. 70.1%), but there were significant differences in duration of NPWT (12.2±6 days in 5/2003-4/2008 vs. 20.2±17 days in 5/2008-4/2013; p<0.001) and usage of NPWT on ambulatory basis (only 7.7% of patients in the first period vs. 41.1% in the second; p<0.05). In univariate analysis, the unsuccess of NPWT was influenced especially by poor diabetes control, exposed bone in the wound, presence of resistant strain of bacteria and haemodialysis (all p<0.01). There were no significant differences in other factors assessed in univariate analysis. Very similar results were seen in multivariate analysis. **Conclusion:** NPWT was effective in majority of patients treated during last 10 years, but poor diabetes control, presence of resistant strain of bacteria, haemodialysis or exposed bone in the wound may contribute to the failure of this method. Advantage for patients should be the transfer of NPWT from hospitals to their homes.

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