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Estimation of different methods of topical treatment of infected wounds in cases of syndrome of diabetic foot (SDF) using PEDIS classification.

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Background: Results of treatment of wounds on different stages of healing process of SDF using Ultrasound-assisted wound treatment (UAWT), wound dressing with active silver vs. "classical debridement" with drainage and hypertonic dressing were estimated in study. PEDIS classification was used for stratification all patients. **Material and methods:** The first step of the study includes 514 patients with active inflammatory and infection process in wound (D1-2; I1-2; S1). 386 were undergone UAWT using Sonoca-180 (Sorring, Germany) - Group UAW. 86 patients (AS - group) after regular debridement were treated by Actisorb (Johnson and Johnson). Control group (CG) consists of 42 patients who were treated by "classical debridement". All patients were segregated by the level of perfusion: in the UAW - P1 - 77 patients, P2 - 243, P3 - 66; in AS - P1 - 19, P2 - 49, P3 - 18; CG - P1 - 9, P2 - 25, P3 - 9 patients. The middle wound size in UAW was $5,24 \pm 3,02$; in AS - 5.74 ± 2.45 ; in CG - 5.66 ± 3.49 sq cm. A selected criterion of treatment effectiveness was the rate of wound healing which was measured by digital method in sq cm \pm 0.05 sq cm. We estimated relative speed (changing of percentage of area of wound a week). **Results:** There is a significant difference in speed of healing ($p < 0.05$) between all groups if perfusion level P2 ($30 < TcPO_2 < 59$). Monthly average speed of healing in UAW group was $19.01 \pm 4.37\%$ a week*, in AS group - $12.89 \pm 3.27\%*$, in CG 1 - $8.67 \pm 2.11\%$ a week. In P3 subgroups, we received a small positive result in UAW group - $2.39 \pm 3.01\%$ compare with negative results in AS and CG ($-0.86 \pm 2.57\%$ and $-1.39 \pm 2.19\%$ accordingly). In P1 subgroups (no ischemia), there is a significant difference ($p < 0.05$) between UAW and two another groups. Monthly average speed of healing in UAW group was $23.71 \pm 4.37\%$ a week*, in AS group - $16.22 \pm 2.27\%$, in CG - $14.37 \pm 4.11\%$. No significant difference between AS and CG was found. **Conclusion:** Healing process at $TcPO_2$ less then 30 mm Hg is doubtful, and at $TcPO_2$ less then 20 mm Hg is generally impossible, independently from type of topical treatment. Using of UAWT significantly improves disinfection of the wound, better than other researched methods. There is no difference in using "Actisorb" vs. "traditional" debridement and hypertonic dressing in group without ischemia. "Actisorb" demonstrates better results in cases of moderate ischemia.