

# THE EFFICACY OF THE INTERVAL VACUUM THERAPY DEVICE VACUMED® IN PATIENTS WITH DIABETIC FOOT SYNDROME

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## BACKGROUND

In the morbidity structure of economically developed countries diabetes mellitus hold one of the first places. The prevalence of diabetes mellitus in general population is 1.5–6%. Lesions of the lower limbs of different genesis occur in 30–80% of persons with impaired carbohydrate metabolism. Frequently these lesions are complicated by the development of chronic ulcers that at the late diagnosis and inadequate treatment leads to amputation of the affected limb.

The objective of this study was to evaluate the efficacy of the interval vacuum therapy device VACUMED® in patients with diabetic foot syndrome.

## MATERIALS AND METHODS

In a study, 50 patients (36% – male, 64% – female) with diabetic foot syndrome, mean age  $60.1 \pm 12$  years who underwent complex therapy with the interval vacuum therapy device VACUMED® – 10 cycles with 20-minute exposure of negative pressure at  $-30 - -40$  mm Hg over a 48–96 hours period were analysed. All diagnosis were confirmed according to diagnostic criteria of American Diabetes Association, DAIINF Study Group. In the duration of the study was evaluated the dynamics of microcirculation indicators in lower extremities according to USDG data, arterial pressure rates and intensity of pain syndrome in lower extremities according to numerical rating scale. Analyses were performed with SPSS, version 20.0 для Windows (IBM Ireland Product Distribution Limited, Ireland).

## RESULTS

After a therapy was observed restoration of microcirculation due to reduction of stenosis events, blood flow and amplitude increasing on 35% vs. initial rate 55–60% ( $p < 0.01$ ). Also was defined renewal of mainline types of blood flow in the peripheral arteries. The positive effects was detected in the normalization of systolic and diastolic arterial pressure till  $120 \pm 10$



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mm Hg and  $85 \pm 5$  mm Hg vs. of initial rates of systolic  $150 \pm 12$  mm Hg and diastolic arterial pressure  $90 \pm 5$  mm Hg ( $p < 0.05$ ). The important component in the efficacy evaluation was the decreasing of acute pain syndrome in the lower extremities. Before and after vacuum therapy was made evaluation according to numerical rating scale. There was found the significant decreasing of pain more than 3 points on first days of treatment and more than 5 points on tenth day of the treatment. Beside this was detected the decreasing of such symptoms as swelling and a feeling of heaviness in the lower limbs.

## CONCLUSIONS

The results of the study let to tell about the efficacy of the interval vacuum therapy device VACUMED® in patients with diabetic foot syndrome. Introduction of this method in the therapy protocol of diabetic foot syndrome would reduce the number of such effects, as amputation of the affected limb.