Effect of balneotherapy on microcirculation in diabetic patients

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Introduction: In diabetic patients we can observe disturbance of microcirculation since the initial stage of diseases. That is the reason of many heavy complication of diabetes. Balneological procedures have most important value in complication of microcirculation treatment but there is not much science evidences. The aim of our research was to define influence of selected balneological procedures on skin microcirculation in patients with long time diabetes.

Materials: 35 diabetes type 2 patients without clinical symptoms of peripheral circulation disorders in lower extremities. Most of them (30 patients) were treated by insulin injections, rest of them only by oral antidiabetes drugs. All of our patients had good control diabetes during observation.

Methods: Treatment program consist of 3 balneological procedures applied everyday by 21 days of thermal treatment. Applied following procedures: CO₂ bath, salt bath with exercises, peat - paste poultices. Every patients gets 16–18 procedures during the time of thermal treatment program. Microcirculation examination had been done before and after treatment by using laser – doppler method in occlusion test.

7 parameters of microcirculation had been estimated; most valuable of them were: MAX (maximal flow after occlusion), MAX/RF (relations of maximal flow after occlusion to rest flow), TL (time of vessels reaction after occlusion), TM (time to reach of maximal flow after occlusion).

Results: We receive high statistical important changes: increasing of MAX (average value; before: 0.828571 pu – perfusion unit., after: 0.950571 pu.), increasing of MAX/RF (average value; before: 1.4246, after: 1.6611), decreasing of TL (average value; before: 0.5031 s., after: 0.4058 s.), decreasing of TM (average value; before: 0.8428 s., after: 0.7811 s.)

Conclusions: Our researches are evidence on valuable influence of selected balneological procedures on microcirculation in diabetic patients.

Keywords: Balneotherapy, Microcirculation, Diabetes