[Objective assessment of results of special hydrotherapy in inpatient rehabilitation following knee prosthesis implantation]

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AIM: Based on our own previous surface EMG investigations (EMG mapping), it has been shown that disturbances in coordination, proprioception and strength measured before and after implantation of a total knee arthroplasty (TKA) can be treated successfully with standard physical therapy during in-patient rehabilitation. The objective of the present study was to evaluate the therapeutic effect of a special type of hydrotherapy. METHOD: 25 patients with TKA were treated for 3 weeks with a standardized hydrotherapy training during in-patient rehabilitation. Several diagnostic methods (EMG mapping, Isokinetics, Ultrasound) were applied to objectify and quantify changes in muscular coordination and strength at 4, 7, and 26 weeks postoperative. These results were compared with the results of 38 TKA patients treated with a "standard rehabilitation program" and with the results of 20 healthy persons. RESULTS: EMG mapping as well as isokinetics and ultrasound permitted an objective characterization of the results. Patients treated with the special hydrotherapy showed greater improvements in the investigated items of coordination and strength than patients treated with the "standard rehabilitation program". For example, in the hydrotherapy group a significantly better contraction capacity of the M. vastus intermedius was measured. The intensive hydrotherapy was tolerated by all patients and reached good acceptance. CONCLUSION: The investigated hydrotherapy technique leads to better muscular coordination and strength, which can provoke a better stabilization of the knee joint. Therefore, the early and intensive application of hydrotherapy for improving coordination and strength in the rehabilitation of patients with total knee arthroplasty is advisable.

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