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Autor(en) des Beitrags:  Wildgruber, M; Wolf, O; Weiss, W; Berger, H; Lutzenberger, W; Eckstein, HH; Heider, P

Titel des Beitrags:  Transcutaneous oximetry compared to ankle-brachial-index measurement in the evaluation of percutaneous transluminal angioplasty.

Abstract:  OBJECTIVE: To investigate transcutaneous oximetry as parameter of the microcirculation is correlated to ankle-brachial-index as parameter of the macrocirculation after peripheral angioplasty procedures. DESIGN: Prospective study. MATERIALS AND METHODS: 60 patients suffering from intermittent claudication were scheduled for angioplasty treatment. 45 patients were considered as eligible for angioplasty after angiographic evaluation, 15 patients underwent angiography only. Transcutaneous oximetry measurements were performed before the procedure, at the end of intervention, 24h as well as 2 and 4 weeks after percutaneous transluminal angioplasty. Ankle-brachial-indices were obtained before intervention, 24h as well as 2 and 4 weeks later. RESULTS: Ankle-brachial-indices increased significantly at 24h after angioplasty in patients being treated with angioplasty. Transcutaneous oximetry values dropped significantly at the end of the procedure and returned close to the baseline levels at 2 and 4 weeks after angioplasty. Ankle-brachial-indices and transcutaneous oximetry were positively correlated before (r=0.3833, p=0.009) as well as 4 weeks after angioplasty (r=0.4596, p=0.001). Immediately after radiological interventions, ankle-brachial-indices and transcutaneous oximetry are not positively correlated. In patients
undergoing angiography only, transcutaneous oximetry levels drop significantly immediately after angiography and remain at decreased levels even at 4 weeks after intervention. CONCLUSION: Transcutaneous oximetry as parameter of the microcirculation is positively correlated with ankle-brachial-index as parameter of the macrocirculation before and at 4 weeks after angioplasty. Intraarterial angiography leads to a sudden decrease in skin microcirculation without affecting macrocirculation. As indicated by a lack of recovery in transcutaneous oximetry levels after 4 weeks, angiography alone results in a prolonged impaired microcirculation which may reflect endothelial dysfunction caused by contrast material. The recovery of transcutaneous oximetry levels following angioplasty is counterbalanced by the adverse effects of the contrast material. Ankle-brachial-indices remains the most favourable parameter in evaluating the success of angioplasty procedures while transcutaneous oximetry serves as an indirect method in assessing endothelial dysfunction caused by contrast material.

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