

Transcutaneous carbon dioxide therapy improves the bioavailability of nitric oxide

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Introduction: Transcutaneous carbon dioxide (CO₂) therapy has been used to improve microcirculation in patients suffering from vasoconstrictive diseases. Nitric Oxide (NO) is one of the major regulators of vascular tone. We aimed to study the effect of CO₂ therapy on the bioavailability of NO. L-arginine/ asymmetric dimethylarginine (ADMA) ratio is an indicator of NO bioavailability. L-arginine is the precursor of NO. ADMA is an endogenous inhibitor of nitric oxide synthase.

Material and Methods: 75 hypertensive patients who underwent a 3 week long cardiac rehabilitation were enrolled. The patients received transcutaneous carbon-dioxide therapy 3 times a week, 30 min long pro occasion. Blood samples were taken one hour before, and one hour, 24 hours and 3 weeks after the first CO₂ treatment. Plasma levels of L-arginine and ADMA were measured by high-pressure liquid chromatography.

Results: ADMA levels decreased significantly one hour after the first CO₂ treatment compared to the baseline concentrations