

Focusing research on the smallest blood vessels

by Dr. Rainer Klopp · 2016

Microcirculation disorders have far-reaching effects on our physical and mental performance, which makes them a major consideration for our overall health.

Dr. Klopp, Head of the Institute for Microcirculation in Berlin, describes the therapeutic measures that are currently available. Dr. Klopp, in your estimation, what percentage of patients at a general practitioner's office are affected by microcirculatory impairments?

At present, it's likely far more than three quarters of the patients.

Which disorders are caused or aggravated by these impairments in the smallest vessels?

Microcirculation is directly or indirectly involved in a very large number of disorders, such as wound-healing disorders and all disorders that present limited regenerative and restitutive processes. One example is type II diabetes mellitus. Microcirculatory impairments, often originating from macrocirculatory impairments, tend to become more and more pronounced until they finally develop their own dynamic and determine the course of the disorder.

What are the effects of microcirculatory impairments?

When the normal blood flow through the organs is restricted in response to changing metabolic requirements, it causes limited or impaired organ function, and even cell death. Furthermore, immune reactions (transport of plasmatic and cellular substances) depend on certain blood flow conditions to function properly. As a result, restrictions of the microcirculation also mean reduced immune defense.

Medicinal therapy options for the treatment of microcirculatory disorders are limited. Why are there no suitable medications?

Let's take a more detailed look. We have effective medications for the large arteriole segments, which have corresponding receptors for nervous and hormonal commands, such as beta-receptor blockers, but not for the small arterioles directly upstream of the capillary networks, which do not have corresponding receptors. These small arterioles can be regulated by certain physical stimuli of the flowing blood itself. It is not possible to influence this area with medications, only with biorhythmically defined physical stimulus that corresponds to the natural regulatory mechanism.

To what extent can patients benefit from physical vascular therapy?

It's an effective adjuvant that serves to optimize the therapeutic effect of proven treatment methods; above all, it is important for its additive prophylactic effects. Transcapillary transport is increased, and the boundary conditions for immune reactions are improved. This means that the patients have improved performance capability and reduced susceptibility to infections.