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Treatment of acute inflammation by CRP-Apheresis

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Abstract

The C-Reactive Protein (CRP) occupies a special position among the acute phase proteins. This plasma molecule has been known for 9 decades. In acute inflammation, the plasma level of CRP can rise to over a hundredfold within hours and then drop back to normal within the following days. The role of CRP in heart attack, both in animal models and in humans, has been particularly well studied. CRP contributes significantly to the subsequent tissue damage.

However, there is still no pharmacological substance that is directed against the CRP molecule and with which its rapid lowering or neutralization can be achieved acutely. Today, the immunological inflammatory extreme situations of myocardial infarction or stroke cannot yet be pharmacologically addressed by direct CRP targeting.

Extracorporeal therapies represent a therapeutic alternative. The CRP amount can be lowered from the blood plasma in a few hours by means of a specific apheresis with a selective adsorber. CRP apheresis was first used in patients after an acute heart attack (AMI). The apheresis takes place 2 or 3 times in 4-5 hours each within 72 hours after the infarction. Approx. 60% of the CRP are removed from the plasma. A pilot study (CAMI-1) showed that in patients with CRP apheresis, compared to a control group, the infarct damage (relative infarct size, heart function) is significantly less. The findings were recorded in cardiac MRI 2-9 days after the infarction. The clinical data support the hypothesis that CRP is causally involved in the expansion of the heart attack volume. Acute anti-inflammatory therapy is possible using specific CRP apheresis. This protects the heart muscle tissue from major CRP driven damage. Further trials are necessary to optimize the CRP apheresis regime after AMI.
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PENTRACOR

Biography

Rudolf Kunze founded Pentracor GmbH to implement the idea of CRP apheresis for acute inflammation-driven diseases such as heart attacks. With the development of the world's only selective CRP adsorber and its approval, you and your team, many of whom have been with us from the start, laid the foundation for the new therapy in the clinic.He have been working on the production, further development and marketing of the PentraSorb ® CRP adsorber.

Publications

1. Pepys MB (2018) The Pentraxin 1975-2018: serendipity, diagnostic and drugs. Front Im 2018, 9, Art 2382
2. Kunze R (2019) C-Reactive Protein: from biomarker to trigger of cell death ? Ther Aph Dial 2019, Dec, 23: p494
3. Barrett TD et al (2002) C-Reactive-Protein associated increase in myocardial infarct size after ischemia/reperfusion. J Pharmacol Exp Ther; 303: p1007
4. Sheriff A et al (2015) Selective apheresis of C Reactive Protein: a new therapeutic option in myocardial infarction? J Clin Apher; 30: p15
5. Mattecka S et al (2019) PentraSorb® C-Reactive Protein: Characterization of the selective C-Reactive Protein adsorber resin. Ther Aph Dial, Oct 23: p474
6. Ries W et al (2019) Selective C-Reactive Protein-Apheresis in Patients. Therapeutic Apheresis and Dialysis 2019; 23(6):570–574