

BVMed Conference on "Therapeutic Apheresis" Experts See "Effective and Safe Therapeutic Approaches for Numerous Disease Patterns".

Therapeutic apheresis, a medical technique for the removal of pathogenic components of the blood, represents an effective and safe therapeutic approach for numerous clinical pictures. The new treatment options offered by therapeutic apheresis are used in a wide range of medical disciplines. Apheresis can also be used to treat diseases for which conventional therapy concepts are no longer effective. This was made clear at the apheresis conference "The Use of Innovative Extracorporeal Therapeutic Procedures" organized by the German Medical Technology Association (BVMed) in Wiesbaden.

For the first time in Germany, ten renowned expert speakers from medicine and science provided a general overview of the therapeutic possibilities and opportunities of apheresis. Numerous prospective randomized studies were presented, relating, for example, to the clinical pictures of rheumatoid arthritis, cardiac muscle weakness, liver failure, chronic inflammatory bowel disease, severe bleeding tendency, hearing loss or eye diseases.

"Therapeutic apheresis must become a recognized therapeutic field in Germany. We have a global lead in research and development, but a backlog in the reimbursement situation. Here we need uniform regulations throughout Germany that make the opportunities of apheresis available to patients," said the moderator of the BVMed conference, Prof. Dr. Dr. Horst Klinkmann, President of the World Apheresis Society, in his summary to 60 participants from medicine, science, health insurance companies and their medical services, and industry.

Therapeutic apheresis is the generic term for new medical procedures for the elimination of certain components of the blood. In apheresis, the elimination of pathogenic protein substances (proteins) or toxins takes place outside the body in an "extracorporeal circuit". The procedure has very few side effects. Therapeutic apheresis offers a variety of medical disciplines the possibility of achieving the goal of an individually optimally adapted, well-tolerated therapy.

Prof. Dr. Dr. Horst Klinkmann described therapeutic apheresis as "one of the most promising innovative medical technologies of the future". In contrast to the well-known dialysis, apheresis involves the entire field of medicine. Germany has a global lead in the entire range of therapeutic apheresis. However, the economic basis in Germany is not sufficiently secure.

Prof. Dr. Dr. Thomas Bosch of the University Hospital of Munich, Vice President of the World Apheresis Society, presented the following definition of therapeutic apheresis in his introductory lecture:

"Elimination of high-molecular-weight pathogenic plasma components (mostly proteins) from plasma or whole blood in an extracorporeal circuit."

In most cases, this is a selective apheresis procedure to remove pathogenic proteins. The useful proteins, on the other hand, are returned to the body. This is an "almost optimal procedure with minimal side effects".

The mechanisms of action of apheresis include the removal of pathogens, especially in metabolic disorders and autoimmune diseases, as well as the elimination of circulating immune complexes and the modification of immune cells. The standard in the industry is "very high". There are hardly any

technical problems left. In principle, the procedure is very well tolerated. Studies have shown an acute and chronic improvement of symptoms and a positive influence on morbidity and mortality. As an example, Prof. Bosch mentioned LDL apheresis, i.e. the extensive elimination of "bad cholesterol". Apheresis leads to a significant reduction in coronary events and mortality. The most frequent use of apheresis is after previous conservative drug therapy with insufficient effect.

Prof. Bosch concluded, "Apheresis is a safe and effective procedure. Various selective procedures are available. There are proven indications for autoimmune diseases, diseases of the kidneys, nerves and metabolism, among others. Newer indications are currently the subject of clinical studies.

Medical cooperation is important: the indication for apheresis and its performance require close interdisciplinary cooperation.

Individual articles on specific disease patterns:

Age-related macular degeneration (disease of the retina)

Private lecturer Dr. Reinhard Klingel from the Apheresis Research Institute in Cologne explained the possibilities of therapeutic apheresis in ophthalmological diseases using the example of age-related macular degeneration (AMD). This is a distorted vision caused by a disease of the retina of the eye. As a result, up to 20,000 patients go blind every year. There are about 430,000 patients with retinal disorders. Effective procedures (e.g., laser technologies) are currently available only for the wet form of the disease. The dry form of this condition has had no form of therapy. "Apheresis offers a treatment option here for the first time," Dr. Klingel said. Rheopheresis to reduce plasma proteins is a good and safe complementary therapy option, he added. The efficacy of rheopheresis in AMD was significantly documented in the controlled, prospective, randomized study conducted at the University Hospital of Cologne.

Rheologic diseases (hearing loss, age-related macular degeneration)

Prof. Dr. Peter Schuff-Werner from the Institute of Clinical Chemistry at the University of Rostock introduced the basics of rheology, which deals with disturbed blood flow. Rheological changes complicate an underlying disease. Increased blood viscosity, or "viscosity," leads to thrombosis or infarcts, for example, he said. Therapeutic apheresis procedures for rheological disorders caused an improvement in the fluidity of the blood and thus an improvement in functionality. Rheologically effective apheresis procedures remove fibrinogen and other rheologically relevant plasma proteins. Prof. Schuff-Werner sees future safe indications - besides hearing loss and age-related macular degeneration - in unstable angina pectoris, but also in acute stroke.

Ulcerative colitis (chronic inflammatory bowel disease)

Prof. Dr. Jörg Emmrich from the Medical Faculty of the University of Rostock presented the possibilities of apheresis for the treatment of chronic inflammatory bowel diseases. About 10 to 20 percent of patients with chronic disease activity cannot be treated satisfactorily even today. Among treatable cases, the cost of new drug therapies is approximately 20,000 to 30,000 marks annually. "Therefore, it is also necessary in terms of costs to develop new therapeutic strategies and not only to drive down inflammation, but to achieve a permanent solution," said Prof. Emmrich. These new therapy strategies include leukocytapheresis to remove cells that maintain the disease - and this, in contrast to drug treatment, with few side effects.

Japanese studies have already demonstrated a therapeutic effect in chronic inflammatory bowel diseases. Further studies on this method are currently underway in Germany as well.

Inhibitory hemophilia (severe bleeding tendency)

Dr. Mario von Depka of Hanover Medical School reported on the new treatment options for inhibitor hemophilia, which involves the formation of autoantibodies against clotting factors and an associated, sometimes life-threatening bleeding tendency. Inhibitory hemophilia can affect patients with congenital hemophilia (hemophiliacs) as well as patients with primary coagulation.

The conventional therapy consists of a substitution of the very cost-intensive clotting factors and the so-called immune tolerance therapy. The latter alone costs DM 31,500 per day and thus more than DM 11 million per year. This is a heavy burden on the hospital's budget. A new treatment method is now immunoadsorption, a recognized apheresis procedure. Immunoadsorption treatment allows rapid control of bleeding risk and long-term elimination of anticoagulants in the majority of patients. This highly effective and safe therapy is more than ten times less expensive than treating inhibitor hemophilia without immunoadsorption, Dr. von Depka said.

Rheumatoid arthritis

Around 800,000 to one million people in Germany suffer from rheumatoid arthritis, according to private lecturer Dr. Peter Kern from the Franz von Prümmer Clinic in Bad Brückenau. Of these, about 500,000 would not be treated. Four to eight percent of patients would not respond to any of the currently available therapeutic approaches. "This means there is a considerable need for further therapeutic approaches. Structured studies in recent years have shown good efficacy in controlling inflammation through therapeutic plasma exchange and immunoadsorption," Dr. Kern said. Since 1999, there has also been a randomized, multicenter study from the USA that meets the criteria of "Evidence-Based Medicine" at the highest level and proves the effectiveness of the procedure. Immunoadsorption is thus an effective and safe form of therapy that has few side effects, can be combined with medications, and leads to a reduction in costs due to better treatment options at an early stage.

Dilated cardiomyopathy (disease of the heart muscle)

According to Prof. Dr. Stephan Felix of Greifswald University Hospital, immunoadsorption is "a novel and very promising therapeutic approach for the treatment of dilated cardiomyopathy" (DCM). This inflammatory disease of the heart muscle is the most frequent cause for heart transplantations. Until now, it could only be treated conservatively with medication. As a result, many patients on the "waiting list" for a new organ die. Autoantibodies against certain structures of the heart seem to play an important role in DCM. This is exactly the starting point of immunoadsorption. The cardiac antibodies are removed, the pumping function of the heart and the severe clinical picture improve. Even severely heart-fail patients are stabilized and can be partially taken off the transplant list. At the same time, the observed side effects of the therapy are surprisingly low. These effects have been documented in prospective and randomized clinical trials and published in high-impact international journals.

Liver failure

Prof. Dr. Dr. Christoph E. Broelsch and Dr. Malago from the University Hospital Essen presented toxin apheresis for the treatment of liver failure. They said that the so-called albumin dialysis leads to an overall improvement in liver and circulatory functions. In the filtration system, toxins pass through the membrane and encounter albumin, which binds the toxins, removing the pollutants from the patient's circulation. Two controlled studies, one of which was conducted in Essen, Germany, have demonstrated improvement in liver function and increased longevity, he said. The removal of toxins from the circulation leads to physiological improvements and is a safe procedure. Thousands of patients have already been treated in this way, so there is a secure data base, but no clearly regulated reimbursement yet.

Hearing loss

Dr. Markus Suckfüll of Munich University Hospital reported on "extracorporeal hemorheotherapy for acute hearing loss." In hearing loss, there are clear vascular concomitants. By means of LDL apheresis, the triggers fibrinogen and cholesterol could be acutely and drastically reduced in the plasma of patients. Lowering fibrinogen improves blood flow properties. Lowering LDL cholesterol improves regional blood flow function and regulation. A pilot study of 30 patients showed superiority of a one-time therapeutic apheresis procedure compared with ten days of inpatient rheological infusion therapy with drugs (glucocorticoids). This year, the University of Munich reviewed these results in 201 patients as part of a prospective randomized multicenter trial. Initial results showed improvements following the apheresis procedure compared with conventional drug treatment. In addition, the apheresis procedure is less burdensome for the patient, as it takes only two hours - instead of ten days of drug infusions. This would also result in significantly lower costs. Publication of the study is planned for later this year.

<https://www.bvmed.de/de/bvmed/presse/pressemeldungen/bvmed-konferenz-zur-therapeutischen-apherese-experten-sehen-wirkungsvolle-und-sichere-therapieansatze-fuer-zahlreiche-krankheitsbilder>

©1999 - 2022 BVMed e.V., Berlin - Portal for Medical Technology