

Lifetime of transplanted kidneys can be prolonged

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The drug Belatacept, which the Medical University of Vienna – represented by Ferdinand Mühlbacher, Head of the University Department of Surgery and the immunologist Thomas Wekerle – was greatly involved in the development of, has been approved for almost two years now. Belatacept is a co-stimulation blocker that suppresses the immune response in kidney transplants and has few side effects. "Plus there are indications that the drug can also help significantly prolong the lifetime of the transplanted organ," says Wekerle.

There is no final data available yet on the lifetime of transplanted

kidneys and subsequent therapy with Belatacept, however estimates predict a prolongation of several years compared to the current treatment regime based on the conventional immunosuppressants known as calcineurin inhibitors.

The new therapy also has another advantage compared to calcineurin inhibitors: it has no non-specific side effects. For almost 30 years, [calcineurin inhibitors](#) have been used for the lifelong suppression of adverse reactions of the immune system to [organ transplants](#). These drugs have been associated with possible adverse side effects such as [high blood pressure](#), disturbances of fat metabolism or diabetes.

At the same time, Belatacept is much easier to administer as a medication: every four weeks, the patient is given an infusion that takes around 30 minutes. With [conventional therapy](#), the patients have to take tablets every day. At the present time, Belatacept treatment is not funded by health insurance funds. The costs for patients treated with this drug at the Vienna General Hospital / MedUni Vienna, however, are paid for by the hospital and/or university. Says Wekerle: "Of course, in an ideal world the costs would be borne by the social security funds."

A vision of the future: bone marrow transplant instead of medication

Current research being carried out by MedUni Vienna scientists, however, is already going one step further. In future, [immunosuppressants](#) will no longer be required at all, being replaced by a [bone marrow transplant](#) from the donor. This prevents any defence reaction against the "foreign" organ.

This is however still associated with adverse side effects: recipients must first be irradiated and be given synthetic substances (cytostatics) to

inhibit cell growth or cell division. This treatment is associated with nausea and a reduction in white and/or red blood cells. "If we are able to reduce this toxicity or eliminate it altogether, it would be revolutionary," says Wekerle. "If we are able to get the foreign bone marrow to graft, the recipient will not recognise the donor organ as foreign. There will be no immune response. Instead, the patient tolerates it." Initial pilot studies have shown that this method promises success.

Provided by Medical University of Vienna

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