

Novel regeneration therapy promises to significantly improve bone repair

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Credit: Sora Shimazaki from Pexels

EU-funded researchers have pioneered a new bone regeneration therapy that promises to significantly improve bone repair and provide a realistic solution for patients who require partial bone replacement.

Currently there is no adequate [therapy](#) available so far that can accelerate long [bone fractures](#) and promote healing. Present solutions in this therapeutic area rely on expensive and side-effects associated [bone](#) devices. The EU OSTEOGROW project has developed an entirely [new therapy](#) that promises to be safe, cost-effective and will decrease the need for secondary interventions.

The new therapy works by using the patient's own blood in order to create a clot when in the operating theatre. The blood is then injected with bone morphogenetic protein-6 (BMP6) and placed in the spot where new bone is needed to be created. The therapy also has the advantage of reducing inflammatory reactions which are common as a result of employing currently-used bone devices.

Within several months, the new bone piece is created, taking only a decilitre of blood to create the needed clots. The bone diseases which will be treated locally with the OSTEOGROW device are acute radius fractures and recalcitrant non-unions of the tibia. These conditions are particularly widespread and highly debilitating for which this new treatment method promises to significantly alleviate associated pain. The treatment would also be employed to treat another common cause of serious pain, degenerative changes in the spinal cord.

Phase 2 clinical trials are taking place in Zagreb, Croatia (where the project is coordinated), Sarajevo and Vienna. This follows tests on rabbits and sheep, which were highly successful in generating new bone. Ten patients underwent the pioneering new therapy at the Sisters of Charity Hospital in Zagreb, which resulted in no complications or toxic effects. In Vienna, surgeons are using the new therapy to treat patients with debilitating spinal fusion. By the end of the trials, 75 patients will have undergone treatment with the new OSTEOGROW treatment.

The research team is also particularly proud of the fact that

OSTEOGROW is the first major international collaborative project to develop an entirely new medical treatment led and coordinated by clinicians in Croatia. 'For the first time the European Commission confided the project coordination to a Croatian medical institution, with 11 European partners from six states. They all helped, but the innovation and originality comes from Zagreb, while partners enabled us to do preclinical trials and move the project to clinical trials,' stated project coordinator Slobodan Vukičević.

As the project enters its final months (due to finish in December 2016) and [clinical trials](#) have thus far proved extremely promising, the research team are now concentrating on the commercial prospects of the new treatment. Acute bone fractures are prevalent in the EU and it is estimated that by 2050, due in part due to an ageing population, 12 million bone fractures will occur on an annual basis. As such, new therapies to enhance bone formation, shorten healing times and prevent non-unions will become an increasing medical requirement.

More information: Project webpage: osteogrow.eu/home/

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