

# Stem cells show long-term success in treating severe peripheral arterial disease

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A long-term study of patients who received stem cells to treat angiitis-induced critical limb ischemia (AICLI) shows the cells to be both safe and effective. The study, published in *Stem Cells Translational Medicine (SCTM)*, could lead to an option for those who suffer from this serious form of peripheral arterial disease (PAD).

AICLI is caused by an inflammation of the blood vessels that leads to a severe blockage in the arteries of the lower or upper extremities. It causes severe pain and impaired mobility, and can even lead to amputation and death. While endovascular and surgical reconstruction are the mainstream treatments for [critical limb ischemia](#) (CLI), these classical treatments are unfeasible in approximately 15 to 20 percent of [patients](#).

Stem cell therapy is a promising option for these otherwise no-option CLI patients. As one of the promising stem cell therapies, purified CD34+ cell transplantation (PuCeT) has shown favorable short-term results, but prior to this new study no one had looked at its long-term outcome.

In the study published in SCTM, researchers at Zhongshan Hospital (affiliated with Fudan University) in Shanghai tracked 27 AICLI patients for five years after each had received an intramuscular injection of PuCeT to treat their disease. "The primary endpoint - major-amputation-free survival rate - as well as secondary endpoints such as peak pain-free walking time and the scale of the patient's pain, were routinely evaluated

during the five-year follow-up period," said Zhihui Dong, M.D., who along with his Department of Vascular Surgery colleague Weiguo Fu, M.D., served as corresponding authors on the study.

The results showed that the major-amputation-free survival rate of these patients was 88.89%, the pain free walking time increased nearly 6-fold and the level of pain they experienced was reduced by more than half.

"Notably, in 17 patients (65.38 percent) not only were their limbs saved, but they also fully recovered their labor competence and returned to their original jobs by week 260. PuCeT demonstrated long-term efficacy and durability as a treatment of AICLI, not only in achieving limb salvage but also in recovering the labor competence and improving the patient's quality of life" Dr. Fu added.

"These long-term results, involving 27 patients, suggest a potential new cell therapy for this debilitating disease," said Anthony Atala, M.D., Editor-in-Chief of STEM CELLS Translational Medicine and director of the Wake Forest Institute for Regenerative Medicine. "This is especially significant because until now, many of these patients had no treatment option."

**More information:** "A five-year study of the efficacy of purified CD34+ cell therapy for angiotensin-induced no-option critical limb ischemia," *STEM CELLS Translational Medicine* (2018).

Provided by Wiley

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