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Stem cells offer hope to patients needing amputation

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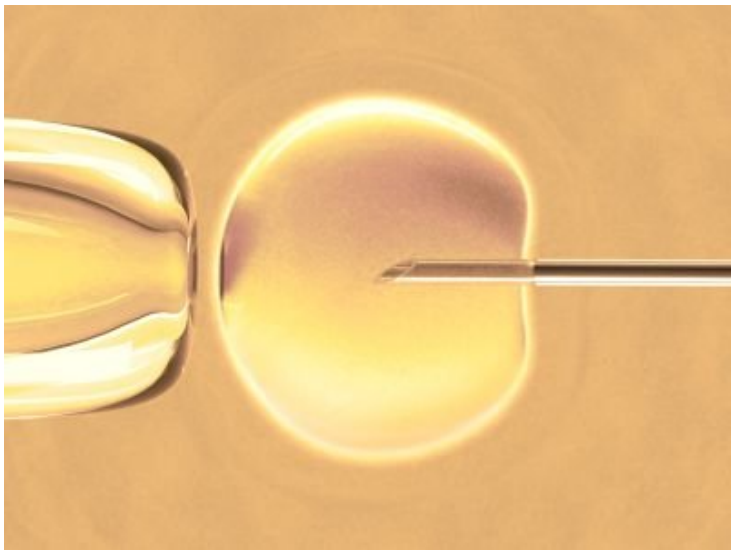
Stem cell research in Korea offers hope for patients needing amputation



Singapore: Korean researchers found that the transplantation adipose (fat) derived stem cells resulted in the regeneration of blood vessels in patients who were otherwise expecting to receive limb amputations due to damaged arteries and lack of blood circulation. The findings of the study were reported in the *Circulation Journal*.

Researchers at Pusan National University, led by Dr Han Cheol Lee, have described how patients with critical limb ischemia (CLI) were injected with adipose tissue-derived mesenchymal stem cell manufactured by RNL Bio. As a result of the remarkable adipose stem cell process of RNL BIO, researchers found that immediate new blood vessel generation was identified.

CLI results from lack of circulation due to small artery damage and subsequent tissue necrosis. Patients with severe CLI often face limb amputation. Buerger's Disease, or diabetic foot ulcer, are of the same kind. Risk factors are diabetic mellitus, hypertension, high cholesterol and smoking. There is no known cure to date.

Currently, percutaneous transluminal angioplasty or PTA may treat 60-70 percent of patients with CLI, but it doesn't work with those who suffer from Buerger's Disease. Working under approval to conduct compassionate use research of stem cell to treat CLI by intra-muscular injection of adipose tissue derived stem cells in December 2008, the researchers in this study enrolled 15 subjects: 12 with Buerger's Disease, and three with diabetic foot ulcers. As many as 300 million stem cells were injected into each patient's leg. No complications were observed, even six months after injection.

Only five patients required minor amputation during follow-up and all amputation sites healed completely. At six months, significant improvement was noted in pain and in claudication walking distance. Digital subtraction angiography before and six months after ATMSC implantation showed formation of numerous vascular collateral networks across affected arteries.

Dr Jeong-Chan Ra, president of RNL Stem Cell Technology Institute, said, "This new therapy through adipose tissue derived mesenchymal stem cell is expected to offer new hope for patients with CLI, hope that had been difficult to find before."