Regenerative Medicine for CLTI: What Is The Future For Stem Cell Therapy In Vascular Disease

Dong-ik Kim, MD, PhD, FACS
Division of Vascular Surgery, Samsung Medical Center, Sungkyunkwan University, Seoul, Korea

Unmet need in intervention and bypass
- Low patency rates
- Limitation of target artery for treatment
- High risk for surgery - due to old age and co-morbidity

Solution of Unmet need
- Stem Cell Transplantation

Why do we need stem cell therapy in ischemic vasculopathy?

Facts from animal study (2002 - )
- Stem cells has potential to differentiate into vessel (Angiogenesis)
- Stem cells secrete many kinds of cytokines.

Angiogenesis differentiated from stem cell:
Animal Study

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Clinical Trials (2004 - )

- Autologous whole bone marrow stem cell
  1) fenestration of tibia
  2) aspiration from iliac bone
- Cord blood derived MNC
- Cord blood derived MSC (Phase I Study)

Angiographic findings

- (A, C, E) : pre-operative status
- (B, D, F) : post-operative status

* (B : +1 9/22)  D : +2  (5/22)  F : +3  (2/22)

Autologous Whole Bone Marrow Stem Cell Transplantation

- From Mar. 2013 to Dec. 2013
- 50 limbs of 33 patients (mean age, 41.0 year; range, 20-72; male, 91%)
Take home message

- Will the stem cell be effective for the treatment of peripheral arterial occlusive disease in the future?
  - Yes, it will be.