

## 2<sup>nd</sup> International Summit on **Integrative Biology**

August 04-05, 2014 Hilton-Chicago/Northbrook, Chicago, USA

### G-CSF improves efficacy of BM-MNC transplantation

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**Background:** The safety and efficacy of autologous bone marrow-derived mononuclear cell (BM-MNC) transplantation in the treatment of lower limb ischemia is becoming established, although common treatment protocols are not yet agreed upon. We hypothesized that bone marrow mobilization with Granulocyte Colony-Stimulating Factor (G-CSF) improves the safety and effectiveness of cellular therapy.

**Methods and Results:** 44 patients were randomly assigned to receive two injections of G-CSF (300 µg) prior to BM-MNC transplantation. BM-MNC were harvested from all patients and injected as equal aliquots of at least  $10^8$  cells into the ischemic leg muscles below the lowest patent artery. After 3 months, patients receiving G-CSF reported increased subjective relief of symptoms and showed increased transcutaneous oxygen tension ( $TcPO_2$ ). After 6 months, patients showed greater improvement in  $TcPO_2$ , ankle-brachial index, and angiographic score compared to control patients. There were no increased number of side effects in patients receiving G-CSF.

**Conclusions:** G-CSF is safe and effective to mobilize BM-MNC and may allow reduced volume of aspirated bone marrow, potentially reducing procedural complications. G-CSF should be considered for use in patients that are candidates for angiogenic therapy. G-CSF may increase the number of patients that are candidates for therapeutic angiogenesis.

#### Biography

Yongquan Gu is a Professor at Xuanwu Hospital, Capital Medical University his main research interests include Vascular surgery, stem cell transplantation, vascular tissue engineering. From 2002 to present he is working at Capital Medical University Vascular Institute as a Vice-Director.

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