

# Cell & Stem Cell Research

March 20-22, 2017 Orlando, USA

## The effectiveness of treatment of patients with luminal form Crohn's disease mesenchymal stromal cells of the bone marrow – 7 years of observation

Knyazev O<sup>1</sup>, Kagramanova A<sup>1</sup>, Fadeeva N<sup>1</sup>, Boldyreva O<sup>1</sup>, Lishchinskaya A<sup>1</sup>, Ruchkina I<sup>1</sup>, Babayan A<sup>1</sup>, Kirova M<sup>1</sup>, Konoplyannikov A<sup>2</sup>, Noskova K<sup>1</sup>, Orlova N<sup>1</sup> and Parfenov A<sup>1</sup><sup>1</sup>Moscow Clinical Research Center, Russia<sup>2</sup>Medical Radiological Research Center, Russia

**Introduction:** Anticytokine therapy with anti-TNF-alpha drugs contribute to the achievement of stable remission of Crohn's Disease (CD). For the treatment of CD Mesenchymal Stromal Cells (MSCs) are also used.

**Objective:** To examine the long-term efficacy (7 years) therapy of Mesenchymal Stromal Cells (MSCs) from the bone marrow of patients with luminal Crohn's Disease (CD).

**Materials & Methods:** 80 patients with luminal form CD (terminal ileitis, colitis and ileocolitis) were divided into two groups. The first group of patients aged 19 to 58 years old (Me-29) (n=34) received the culture of MSCs under the scheme (0-1-2-3, then every 26 weeks). The second group of patients with CD (n=46) aged 20 to 62 years (ME-28) received standard anti-inflammatory therapy with 5-aminosalicylic acid (5-ASA), glucocorticosteroids (GCS) and immunosuppressive (IS). Evaluation of the effectiveness of therapy on the level of the index of activity of Crohn's Disease (CDAI<150 point) was carried out at 12, 24, 36, 48, 60, 72 and 84 months after initiation of therapy.

**Results:** Among the patients in 1-st group, relapse in the 12 months of observation occurred in 4/36 patients (11.76%). In 2-nd group, relapse occurred in 5/46 (10.8%) (p=0.82). After 24 months in the 1-st group of patients receiving MSC, relapse occurred in 6/34 (17.6%). In the 2-nd group of patients relapse occurred in 19/27 (41.3%) (p=0.044). After 36 months in 1-st group patients with a relapse of the disease was in 11/34 (32.3%). In the 2-nd group relapse was 29/46 (63.1%) (p=0.01). After 48 months in 1-st group, receiving MSCs, relapsed in 15/34 (44.1%). In the 2-nd group relapse was in 33/46 (71.7%) (p=0.023). After 60 months in the 1-st group relapse was in 19/34 (55.9%). In the 2-nd group relapse was 40/46 (86.9%) (p=0.004). After 72 months in 1-st group relapse was 25/34 (73.5%). In 2-nd group relapse of the CD occurred in 45/46 (97.8%) (p=0.001). After 84 months in 1-st group relapse CD occurred in 29/34 (85.3%). In the 2-nd group of patients CD relapse occurred in 46/46 (100.0%) (p=0.011).

**Conclusions:** MSCs transplantation helps to maintain a long-term clinical remission in patients with luminal crohn's disease compared with GCS/IS therapy.

oleg7@bk.ru

## Exposure to excess phenobarbital negatively influences the osteogenesis of chick embryos

Yu Yan

Jinan University, China

Phenobarbital is an antiepileptic drug that is widely used to treat epilepsy in a clinical setting. However, a long term of phenobarbital administration in pregnant women may produce side effects on embryonic skeletogenesis. In this study, we aim to investigate the mechanism by which phenobarbital treatment induces developmental defects in long bones. We first determined that phenobarbital treatment decreased chondrogenesis and inhibited the proliferation of chondrocytes in chick embryos. Phenobarbital treatment also suppressed mineralization in both *in vivo* and *in vitro* long bone models. Next, we established that phenobarbital treatment delayed blood vessel invasion in a cartilage template, and this finding was supported by the down-regulation of vascular endothelial growth factor in the hypertrophic zone following phenobarbital treatment. Phenobarbital treatment inhibited tube formation and the migration of human umbilical vein endothelial cells. In addition, it impaired angiogenesis in chick yolk sac membrane model and chorioallantoic membrane model. In summary, phenobarbital exposure led to shortened lengths of long bones during embryogenesis, which might result from inhibiting mesenchyme differentiation, chondrocyte proliferation and delaying mineralization by impairing vascular invasion.

283329554@qq.com