

OP-016 Prospects of the use of stem cells obtained from peripheral blood in degenerative myocardial pathologies

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Objectives

The congenital, metabolic and infective pathological processes that determine degeneration of the cardiac muscle fibers are a frequent cause of cardiac disease in both humans and domestic pets. The incapacity of myocardial tissue to regenerate currently directs treatment towards just the neutralization of the compensation mechanisms of cardiac insufficiency and therefore to the slowing down and stabilizing of the natural pathogenetic progress, without being able to determine a regression of the myocardial lesions and restoration of the contractile function. In this research, we have experimented the use of a regenerative therapy with autologous stem cells obtained from the peripheral blood injected intravenously into patients affected by degenerative cardiomyopathy.

Introduction

Our protocol of regenerative therapy of cardiomyopathies with autologous stem cells obtained from peripheral blood has three aspects that render it highly innovative:

- Direct action on the myocardium with the possibility of acting on the restoring of the contractile function;
- Easy and noninvasive collection of the cellular elements to reprogram (simple blood sample);
- Easy and noninvasive administration of the therapy (slow intravenous injection).

Materials & methods

The experimentation has been conducted according to the following methodology:

- Selection of patients affected by cardiomyopathies already given traditional treatment and stabilized;
- Clinical and echocardiographic staging of the existing pathology;
- Preparation and administration of the autologous stem cells;
- Evaluation of the clinical and echocardiographic progress after administration of the stem cell therapy in the short term;
- Long-term monitoring.

We selected two Great Danes affected by idiopathic dilative cardiomyopathy that had already been treated with a traditional therapeutic protocol and the progress of the pathology stabilized.

Staging of the cardiomyopathy

The staging was carried out following two criteria:

- Echocardiographic measurement of the indexes of systolic function (F.E. and F.S.);
- Evaluation of the class of cardiac insufficiency according to the international classification of the Small Animal Cardiac Health Council.

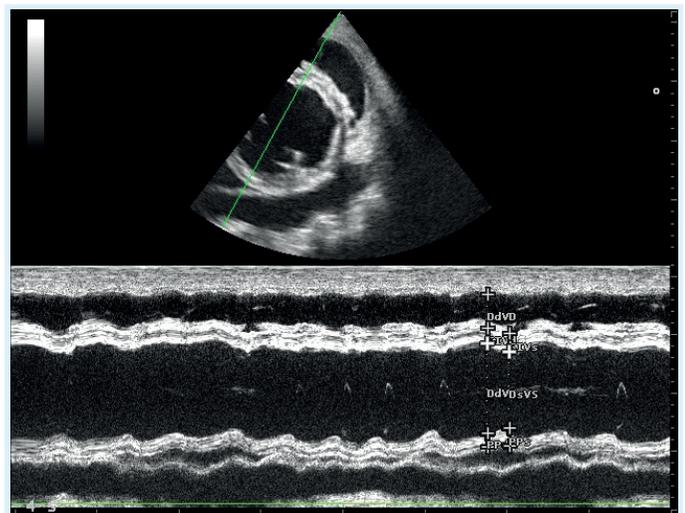


Figure 1.

OP-016**Preparation & administration of the stem cell therapy**

In this paper, we use stem cells directly obtained from mammal peripheral blood cells (Patent Thankstem S.r.l.). Stem cells (hematopoietic stem cell population, 'mesenchymal stem cell-like' and 'pluripotent-like stem cells') were sorted with phenotypic analyzes by FACSariaII. Administration was made slowly intravenously.

Monitoring the progress of the cardiomyopathy

- Echocardiographic reevaluation of the indexes of systolic function was performed after 30, 60 and 90 days.
- The class of cardiac insufficiency was re-evaluated.

Results

Both patients demonstrated a substantial redoubling of their original systolic indexes and an improvement in the class of cardiac insufficiency from class III to class Ib.