Mobilization of CD34/CD133 positive stem cells in surgical patients with complicated intra abdominal infection.

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Introduction

Sepsis is a frequent cause of mortality in patients undergoing major abdominal surgery (AS) with complicated intra-abdominal infection (IAC). We currently lack of informations regarding the endothelial stem cells surgical patients.

Objectives

The aim of the study is to evaluate the time course level of circulating CD34/133 positive endothelial stem cells in AS-IAC patients.

Methods

Consecutive AS patients were enrolled at University Hospital of Foggia. Blood samples were collected at baseline and 1-3-7-10 days postoperatively to perform CD34/133 cells quantitative analysis. The outcome was also recorded. The data are presented as median [IQR].

Results

Of 46 AS patients, 28 AS patients developed IAC and septic shock. 16 of 28 AS-IAC septic shock patients died within 15 days postoperatively. CD34/133 cells number progressively increased in AS patients at 7 vs 1 postoperative day (1,05 cells/mcl [0-3,1] vs 0 cells/mcl [0-1,2], respectively; NS) and in survivors AS-IAC septic shock patients (7 vs 1 postoperative day: 2,5 cells/mcl [0-6,8] vs 0,4 cells/mcl [0-1,5]; p=0,04). Differently, in non survivors AS-IAC septic shock patients CD34/133 increased at 3 days vs baseline (0,9 cells/mcl [0-2,4] vs 0,2 cells/mcl [0-2,3] and progressively decreased at 10 days (0 cells/mcl [0-1,2])).

Conclusions

The presented preliminary findings indicate a increased level of the circulating CD34/CD133 stem cells in the blood of AS patients likely due to an adaptive response to surgical stress. Moreover it appears that AS-IAC septic shock patients mobilizing CD34/133 stem cells exhibit a better outcome. The preliminary data encourage the continuation of the research project on a larger sample size of patients to better understand if and how CD34 stem cells are involved in the surgical patients with septic shock.

Fig1. Time course of CD34/133 positive stem cells in non septic and septic shock patients undergoing major abdominal surgery.

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