Abstract COMUNICAZIONI LIBERE

Fibronectin-adherent peripheral blood derived mononuclear cells as Paclitaxel carriers for glioblastoma treatment: an in vitro study

M. SCHIARITI, F. RESTELLI, P. FERROLI, A. FERRI, V. CESERANI, E. CIUSANI, G. FINOCCHIARO, E. PARATI, F. ACERBI, M. BROGGI, G. ALESSANDRI

Fondazione IRCCS Istituto Neurologico "C. Besta", Milano

Background. Glioblastoma (GBM) represents the most aggressive malignant brain tumor in adults. Many drug delivery methods have been explored. Here we evaluated the possibility to use Mononuclear Cells (MCs) as drug carrier for GBM therapy, given their innate ability to cross blood-brain-barrier in case of inflammatory insults.

Methods. MCs were obtained from peripheral blood of GBM patients, and from healthy volunteers. GBM tissue was obtained during surgeries as well. After MCs isolation, the adherent population on Fibronectin (FNMCs), after immunocytochemistry and flowcytometry characterization, was loaded with 2 μg/mL of Paclitaxel (FNMCsPTX). Antiproliferative and migration activity of FNMCsPTX was evaluated in two dimensional and three dimensional coculture assays with red fluorescent mouse GBM cells and human GBM cells. Antiangiogenic properties of FNMCsPTX were tested on endothelial cells cultures.

Results. GBM cells and FNMCsPTX showed a high expression of monocytic-dendritic markers. FNMCs uptook PTX and inhibited GBM growth in vitro ($p < 0.01$). Tumor-induced migration of FNMCsPTX remained significant if compared to unprimed cells and this was confirmed in a 3D Matrigel model ($p < 0.01$) and in a Transwell migration assay ($p < 0.01$). FNMCsPTX also disclosed considerable antiangiogenic properties.

Conclusions. MCs can be an effective tool to inhibit GBM growth. Given the relatively facility to obtain such cells and the short time needed for their culture and priming, this approach may have potential as adjuvant therapy for GBM.

Corrispondenza: Dr. Marco Schiariti, Istituto Neurologico "C. Besta", via Celoria 11, 20133 Milano (MI), tel. 02-23942421, e-mail: marco.schiariti@ istituto-besta.it

LVII Congresso Nazionale SNO, 24-26 maggio 2017, Napoli.
Atti a cura di Massimo de Bellis e Bruno Zanotti.

ISBN: 978-88-8041-115-4