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Paris, FranceNada Alaaeddine et al., J Clin Gastroenterol Hepatol 2018, Volume: 2
DOI: 10.21767/2575-7733-C1-002**EFFECT OF ADIPOSE DERIVED MESENCHYMAL STEM CELLS ON HEPATO-CELLULAR CARCINOMA: IN VITRO INHIBITION OF CARCINOGENESIS****Nada Alaaeddine¹, Nagib Saliba³, George Hilal², Mayssam Moussa², Ghada Hassan¹, Riad Sarkis³, Marwan Nasr³, Oula El Atat², Charbel Khalil² and Rim Serhal²**¹Centre Hospitalier de l'Universite de Montreal, Canada²Saint-Joseph University, Lebanon³Hotel-Dieu de France, Lebanon

Background: Hepatocellular carcinoma (HCC) is a malignant, deadly disease with higher incidence and no effective treatment. Adipose derived stem cells (ADMSCs) have been shown to exhibit therapeutic efficacy in many diseases; however, their therapeutic effect on cancer is not clear and controversial. In this study, we investigated the effect of ADMSCs and their conditioned media (CM) on biological responses of HCC cell lines, HepG2 and PLC-PRF-5 cells.

Methods: Proliferation rate of cancer cells was measured using cell counting kit-8. Apoptosis level was determined by flow cytometry. Protein and mRNA expressions were measured by ELISA and real time PCR respectively. Migration and invasion rates were detected by transwell migration and invasion assay.

Results: Our data demonstrated that ADMSCs and their CM significantly inhibited the proliferation and increased the apoptosis of HepG2 and PLC-PRF-5 cells, along with an upregulation of the *p53/Retinoblastoma* mRNA and a downregulation of *c-myc/hTERT*. Co-culturing HCC cell lines with ADMSCs or treating them with ADMSCs CM also suppressed the expression of alpha-fetoprotein and Des-γ-carboxyprothrombin, two important markers of carcinogenicity in HCC. In addition, ADMSCs and ADMSCs CM diminished migration and invasion levels of the HepG2 and PLC-PRF-5 cells, possibly through increased expression of the tissue inhibitor metalloproteinases TIMP-1, TIMP-2 and TIMP-3.

Conclusion: These findings shed a new light on a protective role for ADMSCs and their CM in controlling the invasiveness and carcinogenesis of HCC and might be a new pathway to investigate in the treatment of this disease.

Biography

Nada Alaaeddine was the head of regenerative medicine lab at the faculty of medicine at the University of St Joseph Beirut Lebanon. Currently, she is an invited professor at the immunology and inflammation lab at CHUM, University of Montreal, Canada. She also works on cell therapy and osteoarthritis and cancer such as hepatocellular carcinoma, as well telomerase and cancer. She has won many awards such as Phil Rosen awards, the awards of an outstanding woman for innovation on stem cells, and recently she was chosen to represent the Arab pioneer on stem cells to be mentioned on Forbes.

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