EuroSciCon

EuroSciCon Joint Event on

Biotechnology, Stem Cell and Molecular Diagnostics

April 16-17, 2018
Amsterdam, Netherlands

Chandan R Bora et al., Biochem Mol biol J 2018 Volume: 4
DOI: 10.21767/2471-8084-C2-011

EFFICACIOUS DENDRITIC CELL-BASED IMMUNOTHERAPY FOR ADVANCED MULTIPLE MALIGNANCIES

Chandan R Bora[1] and Pramod Dhembare[2]

[1]NOVO Cellular Medicine Institute - Fidelity Healthcare Ltd, Trinidad & Tobago
[2]NOVO Cellular Medicine Institute - Fidelity Healthcare Ltd, India

Background & Aims: Dendritic cell (DC)-based immunotherapy is a promising viable tool in cancer treatment. Dendritic cell (DC)-based vaccination can provoke antitumor T cell responses in vivo. These case studies examined feasibility and outcome of DC-based tumor vaccination for patients with prostate cancer (n=5), breast cancer (n=2), cervical cancer (n=1), gastric cancer (n=1), pancreatic cancer (n=1) This approach has been used mostly in patients in the presence of defined tumor antigens.

Experimental Design: Accessible tumor tissue was disrupted into single cell suspensions. Autologous DCs were prepared from adherent peripheral blood mononuclear cells and cultured in granulocyte macrophage colony-stimulating factor, interleukin and autologous plasma. Tumor cells and DCs were co-cultured in the presence of polyethylene glycol to generate the fusions. Fusion cells were quantified by determining the percentage of cells that co-express tumor and DC markers. Patients vaccinated with three doses of DC (10×106) were administered after every 2 weeks intervals and assessed weekly for toxicity and tumor response was assessed at 3 months after completion of vaccination.

Results: Vaccination was well tolerated. No physical signs of autoimmunity were detected. None of the patients was found to meet the criteria complete responses. There was no evidence of significant toxicity from vaccine or adjuvant. There was increased expression of T helper type 1 cytokines. Vaccination resulted in a significant reduction in the level of prostate-specific antigen (PSA) in prostate cancer patient. There was 20% regression of tumor load in one prostate cancer patient. One patient with prostate cancer had surgery followed by Immunotherapy. PET scan reveals no further cancerous activity was found. Disease was stable upto 6 months in case of breast and cervical cancer patients.

Conclusion: DC-based vaccination can stimulate an antitumoral T cell response in patients with various cancers. These data indicate that vaccination with autologous tumor-pulsed DCs generated from peripheral blood is safe and can induce tumor-specific cellular cytotoxicity. Clinical responses are achievable, even in patients with advanced disease.

Biography

Chandan R Bora completed his Master's Degree from SGB Amravati University (India) and Doctorate Degree from Rani Durgavati Vishwavidyalaya (India). He currently holds the position of a Director at NOVO Cellular Medicine Institute, Fidelity Healthcare Ltd, Trinidad & Tobago. His research areas are Immunology, Microbiology and Molecular Biology. He has presented research papers in many national and international conferences. He has also published national and international research papers, reviews and book chapters. He is the Editorial Board Member of the journal BOAJ Cancer Research and Therapy and active Advisory Board Member of Bio Accent Group LLC. He has several years of experience in autologous cellular therapies especially dendritic cell therapy; activated T cell therapy and tumor infiltrating lymphocyte therapy. He has actively participated in clinical trials on dendritic cells in solid tumors. He has experience in diagnostic industry especially related to immunocompromized diseases like AIDS, Cancer etc.

cha_bora@yahoo.co.in