

4th World Congress on Cell Science & Stem Cell Research

June 24-26, 2014 Valencia Conference Centre, Valencia, Spain

Stem cell therapy for the treatment of severe tissue damage after radiation exposure

Chapel Alain

Institut de Radioprotection et de Sûreté Nucléaire, France

The aim of this talk is to study about mesenchymal stem cell in the treatment of severe radiation pelvic disease: towards clinical application. Radiotherapy may induce irreversible damage on healthy tissues surrounding the tumor. It has been reported that the majority of patients receiving pelvic radiation therapy shows early or late tissue reactions of graded severity as radiotherapy affects not only the targeted tumor cells but also the surrounding healthy tissues. The late adverse effects of pelvic radiotherapy concern 5 to 10% of them, which could be life threatening. However, a clear medical consensus concerning the clinical management of such healthy tissue sequelae does not exist. Although no pharmacologic interventions have yet been proven to efficiently mitigate radiotherapy severe side effects, few preclinical researches show the potential of combined and sequential pharmacological treatments to prevent the onset of tissue damage. The author and his group has demonstrated in preclinical animal models that systemic MSC injection is a promising approach for the medical management of gastrointestinal disorder after irradiation. It was shown that MSC migrate to damaged tissues and restore gut functions after irradiation. The side effects of stem cell injection for further application in patients was carefully studied. The clinical status of three first patients suffering from severe pelvic side effects resulting from an over dosage was improved following MSC injection in a compassionate situation. Stem cell therapy has now to be improved to the point that hospitals can put safe, efficient, and reliable clinical protocols into practice.

Biography

Chapel Alain is investigator in the Laboratory of Radiopathology and Experimental Therapies at the Institute of Radioprotection and Nuclear Safety. He developed gene therapy of non-human primate to protect against radiation effects. He has a strong implication in regenerative medicine. He collaborates with clinicians to develop new strategies for treatment of patients after radiation accidents or radiotherapy overexposures. He has published more than 60 papers in this area. In recent year he got some important success in several patient treatment using stem cells. In animal model, he can propose mechanisms to explain the successful of these new therapeutically correction approaches.

alain.chapel@irsn.fr