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Cytomegalovirus replication and outcome of patients with B-cell lymphoma undergoing allogeneic hematopoietic stem cell transplantation

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This lecture will address the debated role of cytomegalovirus (CMV) replication for the outcome of patients with B-cell lymphomas undergoing allogeneic hematopoietic stem cell transplantation (HSCT). CMV replication can cause multi-organ disease, which is usually associated with acute or chronic graft-versus-host-disease (GVHD), suppression of graft hemopoiesis and immunosuppression, and eventually results in higher non-relapse mortality (NRM). However, it was recently reported that post-transplant CMV replication was associated with a reduced risk of relapse for patients with acute myeloid leukemia. We therefore investigated the role of CMV replication in a retrospective cohort, from seven different Italian institutions, of 200 patients with B-cell lymphomas and transplanted with a similar conditioning regimen comprising the association of thiotepa and cyclophosphamide. In univariate analysis we found that CMV replication was associated with a reduced risk of lymphoma relapse especially for patients transplanted from a HLA identical sibling and with a disease in complete remission post-transplant. Multivariate analysis showed a more complex role for CMV replication that substantially influenced the NRM rate. This lecture will focus also on recent findings of different subsets of the immune-system activated by CMV replication and that might be involved in the reduced relapse rate of lymphoma patients. In particular the lecture will focus on NK and gamma-delta T cells and will propose some pre-clinical mouse models to investigate the potential connection between CMV replication and graft versus lymphoma (GVL) effect.

Biography

Jacopo Mariotti has followed the field of allogeneic hematopoietic stem cell transplantation (HSCT) since 2002. He spent 5 years at the National Cancer Institute in Bethesda to study pre-clinical mouse model of allogeneic HSCT focusing in particular on the problem of graft rejection and graft versus host disease and on the role of the immune-system as testified by his recent publications on blood and immunity. He is now back in Italy where he continues both his clinical and experimental activity supported by grants funded by the European Committee and by the Italian cancer society.

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Dendrimers exploration in cancer therapy and diagnosis

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Dendrimers are versatile nanocarriers which can be designed and synthesized with a high level of control over their size, shape, surface functionalities and interior architecture. The well defined shape, structure and size of dendrimers with precise properties of nano-scaffolds and nano-containers facilitated their exploration in the delivery of various therapeutic agents. In the field of cancer nanotechnology dendrimers have emerged as promising tool for the targeted delivery of diagnostic agents and anticancer drugs. Dendrimers have been also explored in radioactivity, photodynamic therapy and boron neutron capture therapy for selective radiotherapy and cytotoxicity against cancer cells. The dendritic nano-scaffolds showed tremendous advantages in case of gene transfection as well which supported the investigation of dendrimers in the gene and immunotherapy of cancer. Dendrimers have proved their application in all the facets of cancer therapy and diagnosis. This lecture would review various aspects of dendrimers exploration in cancer therapy and diagnosis with a prospect to investigate dendrimers in clinical cancer cure.

Biography

N. K. Jain has been working in the field of pharmaceutics particularly novel drug delivery systems including nanoparticles, dendrimers and carbon nanotubes for more nearly three decades. During this period he has published more than 400 research and review articles in high impact factor journals including *Chemical Reviews*, *Biomaterials*, *Journal of Controlled Release*, and *Nanomedicine* etc. He authored more than 14 books in his credit. He is serving as reviewer of various reputed journals including *Biomaterials*, *Biomacromolecules*, *Journal of Controlled release*, *International Journal of Pharmaceutics* and *Nanomedicine* etc.

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