

# 10<sup>th</sup> Global Annual Oncologists Meeting

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## The reflection of radiation on immune system in patients with solid tumors and hematopoietic tumors

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**Background:** Radiotherapy (RT) recruits biological effectors outside the treatment field with systemic effects. Non-cancerous cells surrounding the tumor may play a pivotal role in cancer progression, as well as in metastasis. Local radiation triggers systemic effects, which in combination with immunotherapy may contribute to better treatment outcomes.

**Objective:** The aim of this study was to evaluate RT effects on peripheral immune system (IS) in patients with lung cancer (LC) or diffuse large B cell lymphoma (DLBCL) after external beam radiotherapy.

**Methods:** We studied a group of LC and DLBCL patients immediately before RT (T0), half-treatment (T1) and 30 days after the end of treatment (T2). Blood samples were analyzed by flow cytometry for CD3, CD4, CD8, CD19, CD56, CD25, CD127 FoxP3 expression. Procarta Cytokine Profiling kit was used to quantify cytokines and chemokines concentrations.

**Results:** In LC patients, a decrease in B, Natural Killer (NK) and cytotoxic NK cells was observed during treatment, associated with an increase of IL-27 and IL-7 from T0 to T1 and followed by a decrease at T2. DLBCL patients showed increased levels of induced regulatory T cells from T1 to T2 and interferon gamma (INF- $\gamma$ ) over time. Comparing the two pathologies, we perceived that LC patients had increased cell subpopulation levels of interleukin (IL)-1 $\beta$ , IL-2, INF- $\gamma$ , IL-5 and chemokine (C-C motif) ligand 5 compared to DLBCL patients.

**Conclusions:** RT induces different IS responses between the two groups of patients. Generally, the IS status of the patients at the beginning of the treatment can contribute to different RT treatment responses.

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## Comprehensive studies of oncology (CSO)

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Cancer is one of the main causes of death in the Western world. In our ageing society, the number of patients will continue to rise in the coming decades since the incidence of the disease is higher among the elderly. The treatment of patients with malignant tumours will therefore be one of the main challenges in the near future and has therefore been dealt in an interdisciplinary context of several cognate disciplines in medicine. The early education of students in the field of cancer research was therefore the main aim to install a special component of a teaching programme, the "Comprehensive Studies of Oncology". These accompanying studies parallel to the last part of their normal studies offers the most interested students the opportunity to acquire additional knowledge and skills in the field of oncological research at a high standard. The "Comprehensive Studies of Oncology" are linked to the "Comprehensive Cancer Center (CCC) in Marburg". More than 70 students attended the curriculum in last 10 years successfully.

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