Results: Single treatments with either anti-PD-1 checkpoint-blocking or CD133-specific T cell-recruiting antibodies had only very little effect on tumor growth. Hypofractionated tumor irradiation alone delayed tumor growth more strongly, but also only transiently for about 2 weeks. Hypofractionated tumor irradiation induced tumor-specific effector T cells. In accordance with this, the double combination of local radiotherapy and anti-PD-1 antibody caused long-lasting tumor regressions including some complete cures, even in mice with large melanomas. Moreover, the cured mice remained immune to subsequent rechallenge with rather high doses of either CD133+ or CD133 B16 melanoma cells. Noteworthy effects were also observed upon administration of the bispecific T cell-recruiting antibody into mice with irradiated tumors. The underlying mechanisms of these observations will be presented at the meeting.

Conclusions: The study suggests that the evaluation of potential synergistic radiotherapy/immunotherapy combinations in immunocompetent mouse tumor models can provide crucial information for clinical trial planning.

Award Lecture: Breur Award Lecture

SP-0488

Radiation Oncology and technological innovation: a fish desperately looking for a bicycle?

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High-tech solutions desperately looking for problems, or are we really making a difference?

"Modern radiation oncology is a well-established, cost-effective and essential component in the curative and palliative treatment of malignancy." A statement no one can argue with. The challenge of individualized treatment optimization continuously drives research and technology, yet we should be careful not to get trapped in the "Cargo Cult Science" as described by Richard Feynman. In this lecture, the author - coming from a radiotherapy department with in its banner the vision: "to offer the optimal and most feasible care to the individual patient, through development and clinical implementation of novel irradiation techniques" - takes a critical view on new technologies in radiation oncology. New developments are more likely to be adopted if they improve the workflow, and if the benefits are more favourable, or at least equal to current care. However, sometimes it seems as if we are in a blind gallop towards increasingly more precise means of tumour localization and irradiation, the perception being that it is largely driven by vendors rather than the care takers’ or patients’ needs. If development moves too fast, the focus might be too strong on the innovation itself and less on the (safe) implementation. Industry funded research doesn’t help much, in that less favourable results do not always end up being published, hence inducing a strong bias towards a perception that improved treatment delivery requires high-tech solutions; whereas sometimes common sense might yield equivalent clinical results. Scientific and technological progress comes at a significant cost, and many concerns exist regarding the value of that progress. Within the current state of the economy, health care politicians face the difficult challenge to allow progress through efficacy and driven by outcomes. What’s even worse is the danger that too much focus on sophisticated expensive technology may create a double layer health care system where not all patients have access to the best of care. In the end what counts is the result, not how we got there. Does this mean we have to refrain from innovation? Certainly not. Indeed, looking back at the technological progress that has been realized the last decades (perhaps “century” is more apt), this evolution has been translated successfully into clinical improvements both in patient cure as well as quality of life (with recent developments such as IMRT, IGRT, BCRT, IGBT, SBRT, IMPT, etc., as a proof of concept). In conclusion, it is safe to state that many good technological solutions are being developed as we speak, the challenge is to introduce these innovations adapted to the radiotherapy requirements (the end-users) ... not the other way around.

Symposium with Proffered Papers: HPV and cancer and radiotherapy (HBN, cervix, vulva, anal)

SP-0489

HPV-transformation in the cervix and at non-cervical sites

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Human papillomavirus (HPV) infections are an essential cause for virtually all carcinomas of the uterine cervix and subsets of other anogenital, oropharyngeal and laryngeal tumors. The HPV aetiological contribution differs in each anatomical location reflecting differences in viral load, viral mode of action, and viral oncogene expression. With recent developments such as IMRT, IGRT, BCRT, IGBT, SBRT, IMPT, etc., as a proof of concept. In conclusion, it is safe to state that many good technological solutions are being developed as we speak, the challenge is to introduce these innovations adapted to the radiotherapy requirements (the end-users) ... not the other way around.

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