



## Joint Symposium 5

Dosimetry Committee / ESTRO

**Monday, October 21, 16:45 - 18:15**

### Session Title

**Combination of different radiation treatments**

### Chairpersons

**Marta Cremonesi** (Milan, Italy)

**Mattias Sandstrom** (Uppsala, Sweden)

### Programme

16:45 - 17:10 **Eduard Gershkevitch** (Tallinn, Estonia): Combination and Retreatment in External Beam Radiation Therapy

17:10 - 17:35 **Jean Pierre Pouget** (Montpellier, France): Lessons from Radiobiology for New Radiation Treatment Approaches

17:35 - 18:00 **Lidia Strigari** (Bologna, Italy): Combination and Retreatment in Radionuclide Therapies

18:00 - 18:15 **Marta Cremonesi** (Milan, Italy): Recommendations and Future Needs

### Educational Objectives

1. To understand the rationales applied today in case of retreatment and / or combined therapies involving EBRT
2. To understand the rationales applied today in case of retreatment and / or combined therapies involving Radionuclide Therapies
3. To learn basics of Radiobiology for New Radiation Treatment Approaches reduction of toxicity in treatments

### Summary

The medical history of cancer patients non rarely entails retreatment with radiation therapies - EBRT, Radionuclide Therapy, and/or combination with anticancer drugs or with complementary radiation modalities as well. In such cases, concern about safety and efficacy requires clinical rationales that could account for potentially enhanced side effects, different tumor response, diverse risk-benefit balance. Additional or unexpected interactive effect of therapies may alter the radiosensibilization of normal tissues and tumors, and the functionality or reserve of the organs or tissues at risk can be substantially impoverished due to the previous treatments. The impact could further vary depending on the time elapsing between treatments.

In this session, rationales and experiences of combined and retreatment with EBRT and Radionuclide Therapy will be discussed, with exchange from the longer expertise in EBRT, the complementary options offered by Radionuclide Therapy, the novel needs and question marks posed by new medical strategies. Radiobiology, in constant renewal, is the bridge between the disciplines involved and the different radiation modalities.



In particular, the renewed methodologies inquire the different radiation interactions, damage and recover mechanisms related to the recent approaches involving radiation and drugs (e.g. low vs high LET, alpha therapies, deposition sites, uniform vs. heterogeneous irradiation, low vs high dose-rates, combined impacts, etc.). This issues are fundamental to acknowledge and guide rationales of present therapy and clinical research.

**Key Words**

Dosimetry; combined therapy; retreatment; radiobiology