Teaching Lecture: Initiating and maintaining meaningful collaborations: a requirement for good sciences! - A guide for dummies

SP-0353
Initiating and maintaining meaningful collaborations: a requirement for good sciences! - A guide for dummies
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Research collaborations occur more frequently today than they did in the past due to a growing likelihood of research funding for interdisciplinary projects, the need to externally validate your finding or to do multicentric studies and advances in communication technologies. It is extraordinarily rare to find a publication in almost any discipline in which there is a single author. Collaborations take place in a variety of forms, including the borrowing and lending of data, resources and equipment between researchers; seeking input from an expert in a different discipline; and partnering with colleagues who have a similar background or field of knowledge for fresh ideas and abilities. A mistake frequently made by Ph.D. students—is to e-mail a scientist telling them you want to do research just like theirs, then ask for data. Conferences are great settings in which to initiate collaborations because of the many opportunities they provide for one-on-one scientific discussion. But often, in particular for young scientist, the first step is the hardest. One low-risk way to try a new collaboration is to offer to analyze your collaborator’s published data in a new way, or to work on a pilot study, before putting a grant proposal together and committing yourself to the relationship.

It is essential for collaborating researchers to establish a clear management plan or more simply a material transfer agreement at the beginning of the endeavor in order to avoid the potential difficulties which they might otherwise encounter. This plan should include the goals and direction of the study, responsibilities of each contributor, research credit and ownership details, and publication authorship. Team members must be open with one another, keeping colleagues informed of developments, changes and problems. Think hard and carefully about how to exclude opportunities for research misconduct. While you need to have a certain level of trust, you also need to have a procedure in place to verify every collaborator’s data. If somebody feels offended by the idea of having their data verified, then you probably don’t want to work with that person. One potential risk is to overestimate what you can accomplish. This can be problematic since your collaborators’ work will be dependent on yours. Reliability is a great asset for collaboration.

A good collaborator learns to be realistic about what he or she can deliver. As with any relationship, collaboration means sharing both the good and the bad. With the correct procedures—and the right collaborators—in place, collaborations should be both effective and enjoyable.

Joint Symposium: ESTRO-CARO: Breast technical issues

SP-0354 Low tech solutions in a high tech world - positioning to decrease radiation induced breast toxicity
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Adjuvant breast radiotherapy (B-RT) remains an essential aspect of breast conserving therapy. Given the increased uptake and improvement in screening, improved personalized treatment decisions with modern systemic management, and increased utilization of B-RT in women with DCIS there are increasing numbers of survivors with life expectancies measured in decades. As a result there is increasing interest in minimizing both acute and late RT toxicity. In the era of rapid and innovative technological advances, one simple intervention that shows promise to improve the quality of life (QoL) in women receiving B-RT is positioning of the breast.

In the acute setting women, especially those with large pendulous breasts, can experience significant skin toxicity including moist desquamation which has been correlated to long term toxicity and decreased QoL. B-RT in the prone position has been shown to decrease dose to the lung and heart in the majority of patients, while also improving dose homogeneity which may result in less acute skin toxicity. For example, a retrospective review of acute toxicity in women with large pendulous breasts treated in the prone position at our centre showed that 9/62 (14.5%) experienced moist desquamation, which is significantly lower than the expected 40-60% rate observed in the literature for large breast women. In 12 of these patients that underwent simulation in both the prone and supine position, plans went on to be independently optimized using standardized planning. Plans generated in the prone position were consistently more homogenous than seen for the corresponding supine plan.

Potential tradeoffs of prone B-RT include less incidental coverage of the chest wall and axillary lymph nodes as compared to treatment in the supine position, as well as currently being limited to patients being treated to the breast alone.

To minimize long term cardiac events, breath hold techniques including those using active breathing control (ABC) have been shown to decrease heart exposure. Unfortunately this technique/technology is not universally available, and some patients are unable to tolerate the process. A potential alternate is positioning patients in either the isocentric lateral decubitus or reverse semi decubitus (RSD) position, where breast tissue is displaced from the chest wall resulting in less exposure to the lung and heart. We completed a retrospective planning study on 12 women with left sided breast cancer with unfavorable cardiac anatomy simulated using supine, RSD and ABC techniques. The mean heart dose and mean LAD dose was higher in the supine position (9.6 and 3.8Gy) than either the RSD (5.7 and 2.8Gy) or ABC (3.2 and 1.7Gy) positions (p=0.004 to 0.005). Although reduction in heart exposure was most pronounced using the ABC technique, the RSD technique could be a suitable alternative in women unable to perform ABC. Trade-offs of the RSD technique include less reliable immobilization and decreased patient comfort, thus creating the potential for suboptimal reproducibility.

Our work and that of others regarding breast positioning to decrease acute and late radiation induced toxicity which will be reviewed in this presentation has lead to our multicentre randomized controlled trial comparing adjuvant breast radiation in the prone vs supine position in women with large pendulous breasts, and a proposed study prospectively comparing RSD to ABC in women with left sided disease.

SP-0355
Respiratory control
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The presentation will begin with a discussion of the rationale for the use of respiratory control techniques in breast cancer. Data pertaining to the dosimetric gains of breath-hold and gating techniques will be reviewed and the expected clinical gains will be modelled based on the Darby data (NEJM, 2013). The range of respiratory control options will be presented and the pros and cons of each technique discussed. The UK HeartSpare Study will be reviewed as an example of how to use research to increase national use of heart-sparing breast radiotherapy techniques. The presentation will finish with a discussion of potential future applications of respiratory control techniques and how to integrate them with advanced radiotherapeutic approaches.

SP-0356
IMRT: should IMRT be the standard of care for adjuvant breast RT?
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The use of IMRT for many cancers has increased in recent years. In general, IMRT has been shown to improve conformity of target volume coverage, with improved high dose sparing of organs at risk (OAR), however, at the cost of increased volumes of normal tissue receiving lower doses of radiation. Improved treatment planning and delivery technology have greatly advanced the practice of IMRT over time. Among women with breast cancer, two distinct “types” of IMRT are used, in very different circumstances with fairly well-defined benefits and costs. Tangential or field in field IMRT has been used to improve delivery of chest wall/breast radiotherapy. Inverse planned multifield or arc IMRT has been used to improve delivery of chest wall/breast + nodal radiotherapy. Tangential or field in field IMRT, either inverse or forward planned, has been shown to increase the ability of radiotherapy departments to improve the quality of treatment planning and delivery of tangential breast radiotherapy, through more efficient planning processes, improved dose homogeneity in the breast, and increased automation, while possibly decreasing toxicity. Inverse planned multifield or arc IMRT has been shown to improve dose conformity, particularly to facilitate inclusion of more complex treatment volumes, e.g. chest wall + internal mammary nodes, in the anatomic setting of significant OAR, such as the heart and lungs. Literature suggests that this is typically at the cost of higher volumes of normal tissue receiving low doses, greater dose inhomoegenity, and greater resources required for treatment planning and delivery. This session will discuss the balance between the benefits and downsides of the use of both types of IMRT, review potential indications for both, and provide illustrative examples of clinical cases and treatment plans.

Symposium: Advanced technology assessment: Quality management in an era of rapidly evolving radiotherapy technology

SP-0357
Introduction: Magnitude of the problem
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SP-0358
How can the radiation oncologist secure patient safety
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Radiotherapy has a long history of examining the risks and documenting adverse events. Pro-active risk assessment and the reactive analyses of events should be used in parallel in order to provide optimal results for risks management. Different methods of risks assessment are available but a combination of methods is needed to perform a complete evaluation. The reactive (retrospective) analysis of events is directly related to the recording and the reporting of events. Detailed analyses should be reported through the local and/or external reporting system with the primarily purpose of more widely disseminating the experience learnt to other professionals. It is important to document all funding and corrective actions in order to prevent the re-occurrence of such events and especially, to share the experience learnt as a result of the event. Two levels of recommendations should be provided: recommendations to institutions that provide radiotherapy services whose primary responsibility is patient safety and secondly, to national authorities which focus on the needs for strong support at the national or original level to promote culture that value risks management and safety. In the area of new technologies, educational program and practice risk analyses should be favored for the development or update the national strategy on quality and risk management to promote a safety culture in radiotherapy. Clinical audits and regulator inspections are also considered to play many important roles in a national strategy. These actions are aiming to identify assessing and analyzing and understanding on risk issues in order to rich an optimal balance of risks benefits and costs. All the actors involved in radiotherapy process should be concerned by these approaches (physicians, physicists, nurses, radiation technologists and companies). The most relevant advice that might be recommended to radiation oncologists aiming to implement new technologies is to participate to trials including a relevant quality assurance program.

SP-0359
From RTT to QA manager ñ increased demands and new challenges
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The professional radiotherapy (RT) team comprised of radiation oncologists, medical physicist and radiation therapist (RTT) work through an integrated process to plan and deliver RT to cancer patients. Each step requires quality control (QC) and quality assurance (QA) measures to prevent errors and to give high confidence that patients will receive the prescribed treatment correctly. Not unlike the other professionals, the RTT is involved in a number of QC and QA measures. However, RTTs often are the last security barrier that will prevent a near incident from becoming an incident as they are often the pivot point between the pre-treatment phase and the treatment phase of the RT process. With the recent advances in RT, including intensity-modulated and image-guided RT, QA demands on RTTs have dramatically increased. While the individualisation of treatments, precise positioning verification processes and increased in IT complexity have optimized patient treatment parameters, they also have resulted in the need for