SP-0001
Update on bone metastases guidelines and the International Consensus Conference on palliative Radiotherapy

Background: External beam radiotherapy is an effective, time-efficient, safe, and cost effective palliative treatment for patients with painful bone metastases. The importance of this therapeutic approach, coupled with complexities of multidisciplinary care, has led to three International Consensus Conference Workshops on Palliative Radiotherapy beginning in 1990 and reconvening every ten years since. The Third International Consensus Conference Workshop was convened in San Diego, California in 2010, and it and paved the way for the publication of the American Society for Radiation Oncology Bone Metastases Guidelines that confirmed the pain relief equivalency between 30 Gy in 10 fractions, 24 Gy in 6 fractions, 20 Gy in 5 fractions, or a single 8 Gy fraction.

Methods: Given the rapid rate of advancements in the management of these patients, the decision was made to shorten the interval between conferences and to host the Fourth International Consensus Conference Workshop at the 2015 European Society for Radiation Oncology Meeting. This group will have the opportunity to discuss research updates that have been published since the 2010 International Conference.

Results: The recent update on the systemic review of palliative radiotherapy trials for bone metastases by Chow et al confirms previous conclusions regarding the most appropriate fractionation schema. The re-analysis of Radiation Therapy and Oncology Group 97-14 data by Howell et al helps allay fears about late spinal cord toxicity for patients who receive a single 8 Gy fraction for spine bone metastases. The first prospective, randomized data about the safety and efficacy of re-treatment with external beam radiotherapy published by Chow et al provides guidance for the management of patients with recurrent pain to the same skeletal site. Additionally, the growing data for the most appropriate use of highly conformal therapy allows for updated recommendations for the treatment of spine bone metastases, especially in the setting of patients with more favorable prognoses and oligometastases. Lastly, a growing body of data helps to more accurately define the effective combination of external beam radiotherapy with radionuclides, bone strengthening agents, and kyphoplasty or vertebroplasty.

Conclusion: The results of the 2015 ESTRO International Consensus Conference Workshop will help to shape the pathways for palliative radiotherapy investigation in the coming years, and it will set the stage for the Fifth Conference to be held in 2020.

SP-0002
The role of radiotherapy for the treatment of brain metastases

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Brain metastases occur in up to 40% of adult cancer patients during the course of their disease. About 60% of these patients have multiple brain metastases, mostly defined as >=4 (or >=5) lesions. The majority of these patients have a poor survival prognosis of only a few months. Without treatment, the median survival time is about 1 month, with corticosteroids alone about 1-2 months. Most of the patients with multiple lesions receive whole-brain radiotherapy (WBRT) alone resulting in median survival times of 3-6 months in most series. Taking into account the generally poor survival prognosis, the overall treatment time of WBRT should be as short as possible. Retrospective studies have suggested that 5x4 Gy in 1 week is as effective as longer-course programs such as 10x3 Gy in 2 weeks or 20x2 Gy in 4 weeks in patients with a poor or intermediate survival prognosis. Patients with a more favorable prognosis may benefit from longer-course WBRT with total doses >30 Gy and doses per fraction <3 Gy. According to retrospective studies, total doses >30 Gy resulted in better intracerebral control and overall survival, doses per fraction <3 Gy in less neurocognitive deficits. In order to reduce the risk of neurocognitive decline, a recent study provided promising results achieved with sparing of the hippocampus. Since the appropriate fractionation of WBRT for the individual patient depends on the patient’s survival prognosis, prognostic tools that allow estimating the remaining lifetime are important. Several survival scores already exist. To be able to even better tailor the treatment regimen to each patient, separate survival scores have been developed for different primary tumor types leading to brain metastases, because each of these primary tumors has its own biological and clinical behavior.

It has been shown that patients with a limited number of 1-3 (or 1-4) brain metastases have a much more favorable survival prognosis than those patients with multiple lesions. Therefore, particularly these patients may benefit from more intensive treatments such as neurosurgical resection, stereotactic radiosurgery (SRS) and fractionated stereotactic radiotherapy (FSRT). SRS +/- WBRT has been shown to result in better local control of the treated lesions, better intracerebral control and better overall survival when compared to WBRT alone.

SRS+WBRT has been demonstrated to result in better local control and intracerebral control without significant improvement in overall survival. Since a randomized trial of 58 patients has demonstrated that the neurocognitive function was significantly worse after SRS+WBRT than after SRS alone at 4 months following treatment, many physicians are reserved regarding the addition of WBRT to SRS. However, in that randomized trial neurocognitive function was significantly worse after SRS+WBRT than after SRS alone at 4 months following treatment, when intracerebral control was significantly better after SRS+WBRT than after SRS alone (73% vs. 27%, p<0.001). Several authors have stated that an intracerebral recurrence (and not WBRT) is the most important cause of neurocognitive decline. In a prospective study from Japan, neurocognitive function appeared even better after SRS+WBRT than after SRS alone at 1 year and at 2 years following treatment. Thus, the role of WBRT in addition to SRS needs to be better defined in further