

Letter to the Editor

Radiosurgery vs radiation therapy for brain metastases: A waning controversy

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Sir,
Two recent articles published as commentaries related to the evolution of treatment for brain metastases reflect still discordant views, both substantiated somewhat by cherry-picking data to support the two opposing viewpoints voiced by Li and Brown “The Diminishing Role of Whole Brain Radiation Therapy in the Treatment of Brain Metastases” JAMA Oncology E Published Jan 5, 2017, pg E1-2 and by Mehta, Aoyama, and Gondi also published in JAMA Oncology, E published Jan 5, 2017, Pg E1-2. The evolution of management of brain metastases both in the US and Japan, and somewhat belatedly in other countries, reflects the more widespread availability of stereotactic radiosurgery (SRS) compared to the prior standard management of whole brain radiation therapy (WBRT). The conversion of initial management of newly recognized spread of cancer to the brain developed at many academic medical centers has gradually spread to most centers that provide cancer care. The reasons for this conversion are manifold and include the ability of SRS to move the cause of death from brain to systemic disease progression (and extracranial disease status has now become the life determinant), the development of important new systemic cancer strategies including biologic agents such as checkpoint inhibitors, the goal of converting cancer to a chronic rather than a fatal disease, and the goal of patients and their doctors to enhance not just the quantity of life, but most importantly, the quality of life. There is little question that the conversion to SRS has been mandated by both clinical trials but also by individual cancer care stories of better quality of life, less early toxicity, and better maintenance of neurocognitive function. It is of interest that Li and Brown, representing two important US cancer centers that utilize SRS extensively, support the conversion wholeheartedly and cite corroborative data. In contrast, Mehta *et al.* have continued over many years,

and at the many centers where Mehta has practiced over the last 20 years, to emphasize the residual role of WBRT by denying the clear cut improvement of quality of life issues of SRS, the reduction in neurocognitive disorders (actually claiming that SRS was associated with greater cognitive dysfunction!), and by continuing to support a bizarre form of brain radiation therapy with selective sparing of the dose of fractionated radiation delivered to the hippocampus despite the knowledge that human memory circuits are much more complex than medial hippocampal dose (while giving full dose to the fornix and the paraventricular stem cell progenitor repair regions of the brain). It is somewhat reassuring to note that, after so many peregrinations, Mehta now offers patients “WBRT, SRS, or a combination, on a case by case basis, after appropriately counseling patients.” It does not take the brains of a rocket scientist, a neurosurgeon, or a more recently trained radiation or medical oncologist, to see how this evolution has mandated a major shift in the current care of patients with brain metastases.

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SRS controls brain disease in more than 80% of treated patients and can be repeated as needed for new disease (the prevention of micrometastasis progression is a dead concept, as new disease represents repeat brain spread not inadequate treatment of existing disease in the era of high definition MRI). The concept that SRS leads to equal or higher neurocognitive dysfunction is patently absurd, and does not take into account systemic disease status or other ongoing treatment paradigms (“chemobrain”). In the current era where continuing advances in the management of systemic disease are reported each month, the use of SRS to control brain disease improves quality of life. It is still surprising to see otherwise bright providers continue to argue this

issue. A greater concern is to evaluate the socioeconomic costs of these various options. As cancer gets moved to a chronic disease state with extended survivals possible, keeping both the brain and body working as close to normal are the new treatment goals. Old paradigms die slowly, especially those that have a fixed economic return to the provider, have been used for five or so decades in the absence of other effective or less toxic alternatives, and have only slowly been endorsed by professional organizations and insurance companies. WBRT has a role in the management of millary brain disease and in the presence of carcinomatous meningitis. Physicians need to always ask the question to themselves if this is my brain, what would I do?