Thames Valley and Wessex Radiotherapy Operational Delivery Network (ODN)

Management of post-SRS/T radiation-induced changes in patients with brain metastases

This document was developed by the ODN Neurological Cancers Protocol Working Group:

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Document History

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The purpose of this pathway is to guide referring teams in the management of transient radiation changes following SRS/T.

All patients post-SRS/T should be monitored with 3 monthly volumetric contrast-enhanced MRI head scans requested by the team in charge of their primary cancer. They should remain under the overall care of their primary oncology team with clinical advice sought from the neuro-oncology team in OUH where required via 01865226419 or srs@oxnet.co.uk.

Complex cases may be discussed at the OUH neurosciences MDT and should be referred via email: neuro-oncology.mdt@nhs.net.

Up to 30 months post-SRS:

Acute/intermediate oedema/enlargement of a previously irradiated brain metastasis may represent pseudoprogression (transient tumour swelling post-irradiation) or radionecrosis (healthy tissue death post-irradiation). This is expected to occur in around 10% of patients and this risk is conveyed to patients at consent to SRS/T. In our experience the median time to radio-necrosis is 20 months post-SRS. There is a low likelihood (10-30%) that changes seen on imaging may represent recurrent tumour.

- Asymptomatic (seen on scan only)
    - Continue 3 monthly volumetric contrast-enhanced MRI
    - MRI to be brought forward if significant change in symptoms.
    - Low threshold for starting dexamethasone if patient becomes symptomatic.
    - Start Keppra 500mg BD for fronto-parietal tumours. Increasing in 250mg increments per week if the patient subsequently suffers seizures to maximum 1500mg BD until seizure control achieved. Guidance to be sought from neurologists if seizures remain uncontrolled on max dose of Keppra.
- Symptomatic
    - Continue 3 monthly volumetric contrast-enhanced MRI
    - MRI to be brought forward if significant change in symptoms.
    - Dexamethasone as below.
    - Start Keppra 500mg BD if the patient suffers seizures. Increasing in 250mg increments per week to maximum 1500mg BD until seizure control achieved. Guidance to be sought from neurologists if seizures remain uncontrolled on max dose of Keppra.
    - Surgical resection of radionecrosis should be considered by the neuro MDT if symptoms are uncontrolled on dexamethasone/Keppra or patient is experiencing significant side effects from long term corticosteroid/anticonvulsant therapy.

>30 months post-SRS:

Pseudoprogression/radionecrosis is less likely after this time interval. The possibility of true tumour progression must be considered. If mixed tumour progression/radionecrosis is suspected, re-irradiation is not advised, and surgery should be considered by the neuro-MDT.

Dexamethasone for symptomatic pseudoprogression/radionecrosis:

Unless contraindicated:
Start Dexamethasone 4mg OD + PPI cover. Increase in 2mg increments if symptoms not controlled. Slow wean by 0.5mg per 7 days to lowest clinically tolerated dose, using 2mg and 0.5mg dexamethasone tablets. If symptoms worsen on weaning, resume previously tolerated dose.

Recommendations

- Community palliative care involvement for symptom management
- Importance of PPI cover on dexamethasone
- Consider long term implications of dexamethasone – blood glucose, muscle wastage, fluid retention, weight gain, infection including candida.
- Dexamethasone/Keppra can both negatively impact mood.
- Consider referral to occupational therapy/physiotherapy for mobility/balance problems.
- Consider referral to neurology for uncontrolled seizures
- This plan to be disseminated to local acute oncology teams.