Introduction

Brain metastases is often one of the most feared consequences of cancer. It is devastating both to patients and their families. Progression of brain metastases may cause headaches, nausea and vomiting, neurological deficits and cognitive decline, delirium and eventually death.

Patients with brain metastases may present dilemmas for palliative health care professionals in terms of whether to proceed with whole brain radiotherapy and hospice placement. It is often difficult to prognosticate survival in these patients and organizing whole brain radiation can be fraught with practical difficulties. The following discussion is meant to look at some prognostic factors and treatment issues that might make it easier to resolve some of the dilemma that palliative health care professionals face.

Discussion

A recent review in 2003 of published randomized controlled trials concluded that ‘the best treatment strategy remains unknown for a large group of patients affected by brain metastases’.

Patients can be categorized into the following groups:

1) Best Supportive care: The overall survival from historical data is about 1 month in patients who are receiving only best supportive care.

2) Best Supportive care with steroids: The survival may be extended up to 2-3 months with steroid use. The prognosis is also dependent on steroid responsiveness. It is interesting to note that radiological response cannot be translated into clinical response.

3) Whole brain Radiotherapy (WBRT): WBRT seems to offer a modest survival benefit (up to approximately 3 months) in treating ‘unselected patients’. This is in addition to the median survival of 2-3 months in patients managed with ‘best supportive care’ and steroids. However, this is modified by the patients’ performance status where patients’ survival can increase by an additional 3-7 months if they are in the high performance status group. For those in poor performance status groups, there was no overall survival benefit. Another way of looking at this is that for ‘unselected’ patients, the median survival is approximately 3-6 months after WBRT.

However, in another study by Frank J et al, the overall median survival is about 1.6 months in patients treated with steroids only, 3.6 months in patients treated with radiotherapy and 8.9 months in patients treated with neurosurgery followed by radiotherapy. Some of the strong prognostic factors for survival are: performance status, response to steroids and evidence of systemic disease.

So, what can we do to help recommend which patients for radiotherapy? Some suggested clinical features to look at for the time being are:

1) Preferably patients with good performance status – a patient with a Karnofsky performance scale (KPS) of >=70 has an estimated median survival of 3.75 months
to 7.5 months when treated with whole brain RT versus a median survival of 1.7 to 2 months for patients with a KPS of less that 70\textsuperscript{7,8}. 

2) For the relief of symptoms – Studies seem to suggest that the WBRT does help with the relief of symptoms and motor loss. However, the relief of symptoms (e.g. seizures, headaches, nausea and vomiting) is achieved to a greater degree than relief of motor loss. (56-96\% vs 46-77\% respectively)\textsuperscript{9,10,11}

3) Good steroid responsiveness - It is noted that patients with a poor response to steroids also had a poorer response to subsequent WBRT. \textsuperscript{12}Moreover, in the study by Frank J et al, patients with good response to steroids alone had a median survival of 4.3 months vs 1.6 months with poor responders\textsuperscript{6}. Hence, it seems to be acceptable to withhold further treatment in patients who are in a poor condition and not responding to steroids as their prognosis is very short.

4) Lesser systemic tumor activity the better – Patient’s systemic tumor activity can be classified as
   i) none (brain metastases only + no other sites of metastases + primary tumor absent)
   ii) limited (brain metastases + other metastases + primary tumor absent/ controlled or brain metastases + primary tumor progressing + no other known metastases)
   iii) extensive (progressive tumor growth + brain metastases + systemic metastases).

The median survival \textsuperscript{12}ranges from 6.6 months for the ‘none’ group to 3.4 months in the ‘limited’ group and 2.4 months in the ‘extensive group’. Hence, the more extensive the cancer, the more likely a conservative approach is going to be appropriate.

CONCLUSION

The basis of selecting patients for whole brain radiation remains a difficult area as the current evidence is rather heterogeneous and of variable methodical quality. More robust randomized trials of WBRT in patients with brain metastases would need to be done. These trials will need to look at stratifying patients by the various prognostic factors (e.g functional status, response to steroids) and include relevant outcome measures such as survival, function, symptom relief, quality of life and cost effectiveness.

The overall assessment of the patient is always best done at the bedside and must be individualized. The above mentioned suggested clinical features should be considered and hopefully will aid in the decision regarding radiotherapy. However, these prognostic factors are not cast in stone. The patient’s and family’s goals of care are always the guiding light of the decision making process.

REFERENCES


