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Is the Time Interval Between Diagnosis and Radiation Treatment an Important Factor in Brain Metastases?

I. Henríquez,¹ C. Conill,¹ E. Verger¹ and F. Graus²

Departments of ¹Radiation Oncology and ²Neurology, Hospital Clinic i Provincial, Villarroel 170, Barcelona 08036, Spain

THE MAIN therapeutic goal in patients with brain metastases is to control symptoms and improve neurological function and quality of survival rather than increase survival itself. Whole brain irradiation is the most effective palliative treatment. Age, Karnofsky performance status (KPS), histological type, primary tumour control, and number of metastases are well-recognised prognostic factors of clinical response and survival [1–3]. In clinical practice, brain metastases are considered as an emergency for radiotherapy, as the rapid onset of treatment implies a remission of neurological symptoms and, consequently, an improvement in the quality of life adjusted for survival time. However, the advantage of rapid onset of treatment has not been fully described in the current literature. We retrospectively analysed 69 patients with symptomatic brain metastases to determine if the duration from diagnosis to the initiation of cranial irradiation was an important factor in terms of clinical response. Sixty-seven per cent of patients were male, with a mean age of 60.7 years (range 31–84 years) and a median KPS of 70%. The lung was the most frequent site of the primary tumour. 39 patients had motor signs, 14 patients superior functional impairment, 4 sensory signs, and 12 patients presented with both motor and sensory symptoms. The majority of brain metastases were supratentorial and multiple. Dexamethasone was administered in all patients after diagnosis, with doses of between 12 and 16 mg. After 48–72 h, corticosteroids were further tapered. Radiotherapy included whole-brain volume delivered through two lateral ports covering the brain and meninges to the foramen magnum. An energy ray (6 Mv) with two fractionation schedules of 30 Gy in 10 fractions or 20 Gy in five fractions were used. The median time interval was 8 days. Regarding the clinical response, no statistically significant differences were observed between the time intervals from diagnosis to the beginning

Table 1. Clinical response

Days*	Clinical response (number of patients)†		P value
	Yes	No	
≤ 8	25	9	0.98
>8	26	6	
≤ 15	32	19	0.89
>15	10	5	
≤ 21	35	16	0.64
>21	10	5	

* Time interval between diagnosis and radiation treatment; † Clinical response was evaluated 4 weeks after radiotherapy by means of neurological examination and Karnofsky performance status. 3 patients were not considered for clinical response due to treatment with one fraction (8 Gy) of radiotherapy.

of treatment. Nevertheless, 30% of patients did not achieve a response to either immediate or delayed treatment (Table 1).

The beneficial effects of 'early' radiation treatment have already been defined in oncological emergency tumours, such as superior vena caval syndrome or medullar compression, but have not been demonstrated in brain metastases. It has been estimated that between 25 and 35% of patients with malignant neoplasms will develop brain metastases in their natural evolution, and 8–9 of every 10 are treated with whole brain irradiation. Due to the very high number of patients with brain metastases that we treat in clinical practice, it is very important to define which subgroup of patients could really benefit from palliative radiation treatment in terms of time interval (immediate versus delayed). This could have an impact in terms of health resources and socioeconomic consequences.

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