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## Pseudo-progression in glioblastoma multiforme (GBM)

### A message to oncologists and their patients from the International Brain Tumour Alliance (IBTA)

The current standard of care for newly diagnosed glioblastoma multiforme (GBM) brain tumours is surgical resection followed by radiotherapy (RT) plus concomitant and adjuvant temozolomide chemotherapy (TMZ), commonly referred to as the “Stupp protocol”.

Studies have suggested that possibly half of all patients with malignant gliomas who have undergone chemoradiotherapy may show signs of early disease progression in their first post-treatment MRI scan, and that a significant proportion of these cases may be pseudo-progression. This phenomenon has been attributed to a transient chemoradiotherapy-induced treatment effect referred to in the literature as “pseudo-progression”.

**The question of pseudo-progression and how long to administer adjuvant temozolomide is the subject of on-going study within the neuro-oncology community but we believe it is necessary to alert oncologists and patients to the issues involved. We would be very disappointed if any brain tumour patient’s chance of extended survival was compromised by premature withdrawal from adjuvant temozolomide therapy without consideration of all the relevant factors.** Accordingly and for educational purposes, so that oncologists and brain tumour patients may be aware of this issue, we list below some of the studies regarding pseudo-progression.

1. Chamberlain MC, Glantz MJ, Chalmers L, Van Horn A, Sloan AE. Early necrosis following concurrent temozolomide and radiotherapy in adult patients with glioblastoma. *Journal of Clinical Oncology, 2006 ASCO Meeting Proceedings. Vol 24, No 18S (June 20 Supplement) (2006)*
2. Taal W, Brandsma D, de Bruin HG, Bromberg JE, Swaark-Kragten AT, Eijkenboom WM, van den Bent MJ. The incidence of pseudo-progression in a cohort of malignant glioma patients treated with chemo-radiation with temozolomide. *Journal of Clinical Oncology, 2007 ASCO Meeting Proceedings. Vol 25, No 18S (June 20 Supplement) (2007)*
3. Brandes AA, Franceschi E, Tosoni A, Blatt V, Pession A, Tallini G, Bertorelle R, Bartolini S, Calbucci F, Andreoli A, Frezza G, Leonardi M, Spagnolli F, Ermani M. MGMT Promoter Methylation Status Can Predict the Incidence and Outcome of Pseudoprogression After Concomitant Radiochemotherapy in Newly Diagnosed Glioblastoma Patients. *Journal of Clinical Oncology, Vol 26, No 13 (May 1), 2008: pp. 2192-2197. (2008)*
4. Brandsma D, Stalpers L, Taal W, Sminia P, van den Bent MJ. Clinical features, mechanisms, and management of pseudoprogression in malignant gliomas. *Lancet Oncology 2008 May; 9(5): 453-61. (2008)*
5. de Wit MC, de Bruin HG, Eijkenboom W, Sillevis Smitt PA, van den Bent MJ. Immediate post-radiotherapy changes in malignant glioma can mimic tumor progression. *Neurology. 2004 Aug 10; 63(3): 535-7. (2004)*
6. Brandes AA, Tosoni A, Spagnolli F, Frezza G, Leonardi M, Calbucci F, Franceschi E. Disease progression or pseudoprogression after concomitant radiochemotherapy treatment: Pitfalls in neurooncology. *Neuro Oncol 2008, DOI:10.1215/15228517-2008-008. (2008).*
7. Mason WP, Del Maestro R, Eisenstat D, Forsyth P, Fulton D, Laperrière N, Macdonald D, Perry J and Thiessen B. Canadian recommendations for the treatment of glioblastoma multiforme. *Current Oncology, 2007 June, Volume 14, No 3: 110-117. (2007).*

Every effort has been made to be accurate regarding the information contained in this document and which is for educational purposes only. However, the IBTA accepts no liability for any errors, inaccuracies or omissions. The above is not an exhaustive list on the topic of pseudo progression or the treatment of glioblastoma multiforme. For individual patient medical care and advice, always consult your doctor. (14 May 2008)

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