

peripheral gangliocytes in a few cases. We concur with Dr. Goldstein that the distinction between multiple-system atrophy and Parkinson's disease with dysautonomia has been improved by monoaminergic radiolabeling studies.<sup>3</sup>

Dr. Schatz identifies an editing error by Dr. Schlossmacher, who misused the word "pure" in characterizing autonomic failure in multiple-system atrophy (the Shy-Drager syndrome). As a disease of the peripheral nervous system, pure autonomic failure lacks involvement of the central nervous system and, thus, signs of parkinsonism or cerebellar dysfunction. Adding to the complexities in nomenclature and pathophysiology, pure autonomic failure shares with Parkinson's disease the predilection for postganglionic neurons and the characteristic, intraneuronal accumulation of  $\alpha$ -synuclein.<sup>4</sup>

Dr. Martin asks whether our patient exemplified the known inaccuracy of predicting death within six months of hospice enrollment. During the last six

months of her life, she resided in a nursing home that provided full palliative care and did not need a hospice referral. In general, we favor a hospice approach for patients with advanced neurodegenerative diseases.<sup>5</sup>

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1. Singleton A, Gwinn-Hardy K, Sharabi Y, et al. Association between cardiac denervation and parkinsonism caused by alpha-synuclein gene triplication. *Brain* 2004;127:768-72.

2. Benarroch EE, Schmeichel AM, Low PA, Parisi JE. Involvement of medullary serotonergic groups in multiple system atrophy. *Ann Neurol* 2004;55:418-22.

3. Riley DE, Chelimsky TC. Autonomic nervous system testing may not distinguish multiple system atrophy from Parkinson's disease. *J Neurol Neurosurg Psychiatry* 2003;74:56-60.

4. Arai K, Kato N, Kashiwado K, Hattori T. Pure autonomic failure in association with human alpha-synucleinopathy. *Neurosci Lett* 2000;296:171-3.

5. Volicer L, Hurley A. Hospice care for patients with advanced progressive dementia. New York: Springer, 1998.

## Somatic Mutations of *EGFR* in Colorectal Cancers and Glioblastomas

**TO THE EDITOR:** Recent reports suggest that mutations in the epidermal growth factor receptor (*EGFR*) gene predict sensitivity to *EGFR* kinase inhibitors. In particular, patients with lung cancers containing mutations in the *EGFR* kinase domain have had responses to gefitinib.<sup>1,2</sup> Are similar *EGFR* mutations present in a significant fraction of other tumor types for which gefitinib might be suitable therapy? To answer this question, we screened DNA from 293 colorectal tumors and 59 glioblastomas for alterations in the *EGFR* kinase domain (exons 17 to 24). These tumors were chosen for analysis because they have been linked to *EGFR* signaling: *EGFR*-targeted antibodies (cetuximab) have been approved for use in patients with colorectal cancer, and structural alterations of the *EGFR* gene (amplifications and rearrangements) have been described in glioblastomas.<sup>3</sup> However, our analysis showed that only one of the colorectal cancers and none of the glioblastomas harbored a mutation. The single mutation was a G-to-S substitution at amino acid 719, which is identical to an activating mutation previously reported in lung tumors.<sup>2</sup> Our results show *EGFR* mutations occur at a very low frequency in colorectal cancers and glioblastomas and suggest that gefitinib is unlikely to be effective in patients with these

tumors. Furthermore, these data suggest that mutations in the *EGFR* kinase domain are unlikely to be responsible for the reported success of cetuximab against many colorectal cancers.<sup>4,5</sup>

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1. Lynch TJ, Bell DW, Sordella R, et al. Activating mutations in the epidermal growth factor receptor underlying responsiveness of non-small-cell lung cancer to gefitinib. *N Engl J Med* 2004;351:2129-39.

2. Paez JG, Janne PA, Lee JC, et al. *EGFR* mutations in lung cancer: correlation with clinical response to gefitinib therapy. *Science* 2004;304:1497-500.

3. Rasheed BK, Wiltshire RN, Bigner SH, Bigner DD. Molecular pathogenesis of malignant gliomas. *Curr Opin Oncol* 1999;11:162-7.

4. Saltz LB, Meropol NJ, Loehrer PJ Sr, Needle MN, Kopit J, Mayer RJ. Phase II trial of cetuximab in patients with refractory colorectal cancer that expresses the epidermal growth factor receptor. *J Clin Oncol* 2004;22:1201-8.

5. Cunningham D, Humblet Y, Siena S, et al. Cetuximab monotherapy and cetuximab plus irinotecan in irinotecan-refractory metastatic colorectal cancer. *N Engl J Med* 2004;351:337-45.

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