

Ethics Consultations and Patients With Neurological Diseases

To the Editor: The article by Swetz et al¹ called attention to ethical dilemmas in daily hospital interactions and has stimulated fruitful discussion about how to deal with ethical issues among hospital staff and, most importantly, between caretakers and patients. It effectively promotes the use of formal ethical consultation. From our perspective, neurological syndromes generate diverse ethical dilemmas that may require specific attention.

Treating patients in a vegetative or nearly vegetative state is costly and agonizing. Neurophysiologic studies provide no easy answers for treating these patients. For example, 12% of patients in a vegetative state and 77% of those in a nearly vegetative state show event-related electrical potentials supporting the existence of semantic processing, ie, the ability to comprehend the meaning of language.² Patients and family might wonder whether medical care is generating more suffering than it is relieving. Health care professionals are committed to exert any effort to save and prolong life to the extent modern techniques allow. The responsibility for the life of a patient has been borne on many shoulders, including teams of ethical consultants and state legislators.

Dementia, psychosis, and other devastating deficits compromise patient judgment, potentially calling into question autonomy and consideration of preexpressed or family-inferred patient wishes. Motor neuron disease creates the dilemma of extending conscious life in a crippling state, in which a person could be bound to an artificial respirator and completely dependent. Many neurological diseases, such as Huntington chorea, remain incurable and create a dilemma about whether an unaffected relative should be tested for the disease-causing mutation.

What of the individual who becomes aware, from incidental discovery on a head imaging study, of a predisposition to a disease leading inexorably to disability and lifelong dependence? On the one hand, diagnoses based on imaging hold promise for assessing metabolic and anatomic anomalies, including those related to altered function or irreversible injury. On the other hand, diagnoses based on imaging also raise compelling questions about the precautions needed as patients seek earlier diagnosis of diseases for which cures or even effective symptomatic treatments do not yet exist.³ Who will assume primary responsibility for offering ethical consultation for these questions?

We would find it informative if Swetz et al would subcategorize the neurological cases (intensive care unit patients, stroke patients, neurodegenerative/genetic diseases) so that readers can have a better understanding of the types of ethical issues that are raised during hospitalization of these patients. Furthermore, it would be interesting to know whether these formal consultations were comparable to the presumably more frequent informal consultations regarding similar conditions

and whether cases that were resolved before the multidisciplinary team was assembled were different from those after the team was assembled. The assessment of a tool such as the multidisciplinary ethics team requires a clear understanding of the team's consultations on similar dilemmas. Because cases were gathered in the course of a decade, time trends in the recommendations of the team when faced with certain questions would also be of interest.

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1. Swetz KM, Crowley ME, Hook CC, Mueller PS. Report of 255 clinical ethics consultations and review of the literature. *Mayo Clin Proc.* 2007; 82(6):686-691.

2. Schoenle PW, Witzke W. How vegetative is the vegetative state? preserved semantic processing in VS patients—evidence from N 400 event-related potentials. *NeuroRehabilitation.* 2004;19(4):329-334.

3. Illes J, Racine E. Imaging or imagining? a neuroethics challenge informed by genetics. *Am J Bioeth.* 2005 Spring;5(2):5-18.

In reply: We thank Dr Algom and colleagues for their interest in and comments regarding our recent article. Herein, we respond to the queries in their letter. Of the 255 patients in our series, 47 (18%) had a neurological diagnosis. Of these 47 patients (mean age, 68.0 years; median age, 74.5 years), 15 (32%) were diagnosed as having an ischemic stroke; 10 (21%), an intracranial hemorrhage; 7 (15%), traumatic brain injury; 3 (6%), dementia; and 2 (4%), amyotrophic lateral sclerosis. The remaining 9 patients (19%) were diagnosed as having a variety of other neurological conditions (eg, paraneoplastic encephalopathy, central nervous system vasculitis, granulomatous leptomeningitis, myasthenia gravis, generalized dystonia, and central nervous system lymphoma). One patient had brain death (in the setting of fulminant hepatic failure), but none of the patients were in a persistent vegetative state. Of the 47 patients, 16 (34%) were in the intensive care unit, 36 (77%) had a poor prognosis or terminal diagnosis, and 12 (26%) died before discharge. Although 28 patients (60%) had do-not-resuscitate orders, only 12 (26%) had advance directives. No clear trend was observed in the volume of ethics consultations involving patients with neurological diagnoses during the study period.

The ethical issues addressed in the ethics consultations involving the 47 patients with neurological diagnoses were similar to those involving the overall study population. Algom and colleagues were correct in assuming that issues related to patient decision-making capacity and surrogate decision-making were common; they were addressed in 40 consultations (85%). This frequency, however, was similar to that involving our overall patient population (82%).

Ethics consultations regarding patients with neurological disease also addressed the following ethical issues: (1) disagreement among staff members or between staff members and the patient and/or patient's family (34 consultations [72%]), (2) the withholding or withdrawal of treatment (32

[68%], (3) quality of life vs end-of-life care (29 [62%]), (4) medical futility (24 [51%]), (5) patient autonomy (18 [38%]), and (6) advance directives (12 [26%]). Less common ethical issues were allocation of resources, legal issues, family conflicts, and religious and cultural issues.

We conducted further analysis of the cases in which the ethics consultations addressed the withholding or withdrawal of treatment (eg, mechanical ventilation, enteral nutrition, surgery, hemodialysis, pacemakers). This issue was addressed in 68% of the consultations involving patients with neurological diagnoses but only 52% of those involving the entire study group. Notably, of the 47 consultations involving patients with neurological diagnoses, 17 (36%) addressed the appropriateness of enteral nutrition (eg, placement of a permanent feeding tube) after stroke or brain injury. In contrast, of the 208 consultations involving patients with a nonneurological diagnosis, only 17 (8%) addressed the issue of the appropriateness of enteral nutrition. In 35 of the neurological cases (74%), the assembly of the entire multidisciplinary ethics consultation was not necessary because ethical issues were resolved by education of involved parties, intensified efforts at communication, and exploration of core issues. This result is similar to the result for the overall group (70%).

A number of inferences can be drawn from these findings. First, the ethical issues that prompt ethics consultations for patients with neurological diagnoses are similar to those for patients with nonneurological diagnoses. Second, these patients were diagnosed as having relatively common neurological conditions (eg, ischemic stroke and intracranial hemorrhage). Media attention paid to the Terri Schiavo saga¹ and similar cases might lead one to believe that, among patients with neurological diagnoses, those who have persistent vegetative states account for most ethics consultations. In fact, none of our patients had these diagnoses. Third, ethical issues related to enteral nutrition appear to be more common among patients with neurological vs nonneurological diagnoses. Despite relatively clear guidelines regarding the benefits and burdens of such treatment,² this finding suggests that clinicians involved in the care of patients with neurological conditions should become more familiar with these guidelines. Finally, as with our entire study group, knowledge of clinical ethics varied among clinicians, and education played an important role during the ethics consultation process. The ethical issues involving most of our patients with neurological diagnoses resolved during the ethics consultation process, which typically entails the discernment of ethical issues and concerns as well as ethics education of patients, clinicians, and other relevant parties.

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1. Hook CC, Mueller PS. The Terri Schiavo saga: the making of a tragedy and lessons learned. *Mayo Clin Proc.* 2005;80(11):1449-1460.

2. Koretz RL, Avenell A, Lipman TO, Braunschweig CL, Milne AC. Does enteral nutrition affect clinical outcome? a systematic review of the randomized trials. *Am J Gastroenterol.* 2007;102(2):412-429.

Clinician Attitudes Toward Biostatistics

To the Editor: The article by West and Ficalora¹ on clinician attitudes toward biostatistics raises important issues regarding training and continuing education of physicians in statistics. The authors found that more than two-thirds of their respondents at Mayo Clinic Rochester disagreed or strongly disagreed with the statement that “the current level of medical training in biostatistics in medicine is adequate.”

Appropriate training is particularly important for physicians who do not pursue additional training through a Master of Public Health degree or a research fellowship. For these physicians, the only required training in statistics could be a short unit in medical school reinforced by some additional exposure during their residency (using, it is hoped, the integrated approach of teaching in the context of clinically relevant medical discussions proposed by West and Ficalora). Matthews and McPherson² caution that “Innumerate doctors...are doomed to have to accept without reservation the statements made in summaries, discussions, or conclusions, and their clinical practice may thus be altered on the basis of flimsy or inconclusive evidence.”

An additional complication to consider is the increasing sophistication of statistical methods used in the medical literature. Our review of original articles published in the *New England Journal of Medicine* found a marked increase in the complexity of statistical methods.³ For example, the use of multiple regression increased from 14% in 1989 to 51% in 2004 to 2005.⁴ Multiple regression is an important concept to communicate to all physicians because it is key to understanding confounding variables, effect modifications, and interactions that arise in many articles that communicate clinically important research findings. The current level of statistical education in medical schools and residency programs might not provide students with a working knowledge of these and other intermediate-level statistical topics.

Medical educators, journal editors, and statisticians should be encouraged to implement and disseminate more of the innovative educational approaches that West and Ficalora describe. It might also be time to revisit proposals to require statistical training as a prerequisite to medical school.

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1. West CP, Ficalora RD. Clinician attitudes toward biostatistics. *Mayo Clin Proc.* 2007;82(8):939-943.