Ethics in Neurosurgery

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ETHICS IN NEUROSURGERY

Physicians bear a responsibility to “first, do no harm” to their patients. Although the origins of medical ethics are often traced back to Hippocrates, the rapid development of novel technologies and the constraints of health care have prompted ethicists to challenge and contextualize Hippocratic tradition to fit the demands of modern practice.[1] Neurosurgery’s reliance on rapid technological innovation has greatly expanded the capability of medicine to heal what were previously difficult-to-treat neurological diseases.

With these technologies, however, come increasingly complex ethical concerns. Neurosurgery’s specific involvement with the most vulnerable part of a person necessitates a complex discussion between the physician and the patient before informed consent can be given. The field also relies significantly on research and innovation to pilot new methods of intervening in the brain, and the partnerships fostered through this

process require proper disclosure of potential conflicts of interest (COIs) to protect patient rights. Thus, a proper study of medical ethics is important for surgeons to translate their armamentarium into options for providing optimal and compassionate patient care. The goal of this chapter is to review the essential principles of medical ethics and explore how these principles are vital to the practice of neurosurgery.

Ethics Principles

For decades, professional organizations such as the American Medical Association have developed sets of guidelines for the benefit of patients. These guidelines center largely on 4 major principles[2]:

1. Beneficence—the obligation to provide a net benefit to patients seeking care
2. Nonmaleficence—the obligation to minimize harm toward patients seeking care
3. Autonomy—the obligation to ensure that patients have control over their health care decisions
4. Justice—the obligation to act fairly toward all patients

These principles are neither exhaustive nor mutually exclusive. Rather, they exist to guide the decision-making involved in patient care. The duty of neurosurgeons is ultimately to their patients, and with that duty exists a responsibility to translate difficult choices into ethically sound decisions.

Choosing Wisely: Informed Consent for Neurosurgical Patients

In 2011, the World Federation of Neurosurgical Societies (WFNS) released a statement of ethics in neurosurgery.[3] Similar to those of other professional societies, the WFNS recommendations contain guidelines for professionalism, patient rights, legal responsibilities, end-of-life care, evidence-based medicine, and other important contemporary ethical issues in the field. To date, they remain the most comprehensive set of

guidelines by which surgeons are expected to abide.

Guidelines are important for clinical practice; however, there are other aspects of ethics necessary for patient care that are not inherently codified by professional society recommendations. Situations in which neurosurgical ethics are involved can go horribly wrong. The clearest examples are often the most infrequent and require little debate among the community regarding what is right and what is wrong. Rather, it is the nuances in decision-making for individual patients that require a careful study of ethics to do what is right by them.

Informed consent for neurosurgical procedures remains an actively studied topic, and for good reason. A study by Krupp et al.[4] found that patients undergoing neurosurgical procedures recalled less than one-fifth of the information presented during the informed consent process regardless of their age. Barriers to proper informed consent include lack of time, discrepancies between a patient's understanding of a procedure and that of the resident/attending physician, and a gap between the patient's goals and those of the physician.[5] Proper informed consent has been shown to preserve patient autonomy, increase patient satisfaction, and increase treatment cooperation.[5,6] The use of teaching aids such as online interactive programs and physical models has also been shown to significantly improve the informed-consent process.[6–10]

Patient autonomy and informed consent are paramount for good clinical practice; however, recent studies have also highlighted the role of bias in decision-making. Bias is defined as the presence of decision-making heuristics and cognitive processes that are not informed by rational thinking. Bias can be informational (eg, presenting the risks and benefits of a procedure in an unbalanced manner), geographic (eg, suggesting a procedure depending on culture and institutional preference despite the similar efficacies of that procedure), or individual (eg, implicit bias).[11] With regards to neurosurgical and neurocritical care, bias can be compounded further by surrogate decision-makers, the delusion paradox (wherein patients with a disability report better quality of life than do patients who are asked to imagine themselves with a disability), and physician variability

in predicting survival of critically ill patients.[12,13]

Collaborative decision-making models that involve patients, surrogates, and providers can aid in reducing bias and providing more ethically responsible care. It is currently estimated that in intensive care unit settings, 30% of conferences concerning end-of-life treatment decisions did not include discussions about the patient's preferences or values.[14] Shared decision-making (SDM) is a collaborative model in which providers, patients, and surrogates clearly communicate their values and preferences before making a treatment decision. SDM often relies on the use of decision aids.[15]

Although the use of decision aids in neurosurgical practice has yet to be fully studied, studies in acute stroke care have shown clear benefits of SDM on patient care.[16,17] A study by Flynn et al.[18] found that the use of decision aids in acute stroke care resulted in better communication of the risks and benefits of thrombolytic therapy by emphasizing patient-specific outcomes. The use of these aids did not compromise the quality of the interventions.

Surgical Innovation: COIs and Disclosure

Surgical progress and innovation are vital to the practice of neurosurgery. Often, neurosurgeons rely on collaborations with device manufacturers and patients seeking care. As these relationships expand, so do opportunities for COIs. A COI is defined as the presence of competing goals held by an individual or organization.[19] COIs can originate from financial interests or obligations between different organizations. Failure to successfully mitigate COIs can lead to biases in how procedures are presented, adversely affect patient outcomes, and lead to the loss of patient trust.[19] For example, physicians can "overvalue" novel devices when discussing them with patients if they are involved in early implementation (referred to as the Ikea effect).[20] Financial incentives also can interfere with rational decision-making,[19, 21] and they should be disclosed to preserve patient trust. Thus, proper disclosure of

relationships with industry is necessary during the informed-consent process.

In addition, patients should have a clear understanding of their treatment goals when consenting to any experimental therapy. Therapeutic misconception is when a patient conflates the purpose of research and clinical therapy, often expecting a higher-than-projected clinical result from a novel procedure[19,22]; thus, it is a poignant ethical issue in the field of neurosurgery.[19,23] Disclosing potential harms for a novel therapy can often be difficult because the risks and how that therapy compares to the gold standard treatment(s) are not inherently known.[24] It is ultimately up to the neurosurgeon as to how to use the expanded armamentarium properly and to give patients enough knowledge to exert autonomy over their own decision to pursue a novel therapy.

SUMMARY

In this chapter, we have reviewed important ethical principles in the field of neurosurgery. Informed consent, bias, SDM, and COI disclosure are important ethical themes that will play a larger role as neurosurgical capabilities expand. The study of ethics in neurosurgery can be used as a method of expanding the toolbox for neurosurgical decision-making while also involving the patient in his or her own care.

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