ELSEVIER
SAUNDERS

Neurosurg Clin N Am 15 (2004) ix–x

NEUROSURGERY
CLINICS
OF NORTH AMERICA

Preface
Pain Treatment

Gary Heit, MD, PhD
Guest Editor

Chronic pain is a debilitating disorder with an estimated cost to society ranging in the billions of dollars. The treatment of chronic pain represents one of the most challenging problems in modern neurosurgery given its poorly understood pathophysiology, intractability to surgical intervention, pervasive nature, and impact on the psychosocial aspects of the patient. Many patients who suffer from chronic pain syndromes have had sufficient derangement of their lives for so long that the syndrome itself no longer becomes the primary disturbance to them having a meaningful quality of life. This leads to the common phenomenon of a successful surgical outcome but an overall unsatisfactory clinical result. To combat this, a multimodal approach to the treatment of the pain offers the best possibility of an overall acceptable clinical outcome for the patient. The goal of a surgical intervention should never be complete resolution of pain, but return of the patient to a meaningful quality of life. This latter notion of *quality of life* versus *pain-free* should be the overriding principle in any surgical approach to a patient. Multiple factors are affected by this statement. Patient expectations postsurgery, choice of surgical target, perioperative risk assessment, and long-term pain control are some factors that readily come to mind that can be prejudiced by the surgeon's predetermined goal. This issue of the *Neurosurgery Clinics of North America* provides an intellectual framework for approaching many of the common problems encountered in the neurosurgical treatment of pain. (However, given the scope of the issue, there is a lack of discussion about some of the nonsurgical "soft" aspects of treatment eluded to earlier and I urge readers not to ignore the importance of these issues.) Additionally, I have taken the liberty of outlining a heuristic approach to treatment planning and some commonly encountered problems in the perioperative period.

All patients should be judged as medically intractable before a surgical intervention. This typically should involve a patient's participation in an interdisciplinary medical-based pain service. Establishing a relationship with such a group can eliminate much of the overhead associated with an appropriate workup of the patient who has chronic pain. A workup should consist of exhaustive medical trials of narcotics, antineuropathic agents, and physical and occupational therapies. Equally important is an extensive psychologic assessment of the patient's coping skills, the possible use of cognitive behavioral therapies, and the psychologic impact of the patient's pain. This comprehensive workup has diagnostic implications for the choice of surgical interventions. Many of the therapeutic interventions that a multidisciplinary pain service will use have diagnostic

1042-3680/04/$ - see front matter
doi:10.1016/j.nec.2004.03.003

and prognostic value for the surgeon. Patients who have narcotic responsive pain that are poorly maintained on oral opiates can benefit from intrathecal opiates by improved local drug concentrations to appropriate receptors in the spinal cord or periventricular spaces with concomitant decrease receptor exposure to central nervous system sites that limit the size of the therapeutic window. If the patient's pain has a partial response to membrane stabilization, it implies that they will not respond as well to intrathecal narcotics but may do better with neuromodulation or non-narcotic intrathecal medications. In addition, many of these presurgical interventions, though unsuccessful before a surgical intervention, may subsequently prove beneficial following the procedure. I always encourage the patient to consider pain relief to be accomplished by a "tool box" of which the surgical procedure is but one element, and that can often enable other "tools" to become efficacious again.

The initial surgical evaluation of a patient who has chronic pain should always identify the nature, location, and factors that influence pain. These determinates should include the character and quality of the pain (ie, burning versus achy), its location and distribution, responses to medical treatments, and factors that can worsen or improve it. A careful temporally coherent history of the pain, inclusive of the aforementioned factors, is essential in formulating a hypothesis regarding the location, type, and number of the generators of the patient's pain syndrome. This hypothetical construct then allows the surgeon develop a rational for the type and location of a surgical procedure other than an empirical application.

A wide variety of surgical options are open to the clinician. The selection of a procedure should always be grounded in the *a priori* goal of the intervention: pain relief to a meaningful quality of life. As a general rule, neuroablative procedures are best used in situations where the goal is pain relief in the range of months to a few years at best. A meta-analysis of the ablative literature suggests that these procedures should be used sparingly in chronic pain syndromes and then only after the therapeutic failure of appropriate neuromodulation applications. There are exceptions to the rule (eg, trigeminal neuralgia, in which percutaneous approaches by way of the foramen of ovale or stereotactic radiosurgery offer a sufficient risk/benefit ratio) that are warranted in appropriate candidates. Even now, microvascular decompression is still the preferred therapeutic option to trigeminal pain in healthy individuals.

I hope that readers find the following articles informative as well as provocative in their consideration of the surgical management of chronic pain. I believe that within the domain of functional neurosurgery, chronic pain still represents one of the more challenging diagnostic and therapeutic disease states for clinicians to address.

Gary Heit, MD, PhD
Department of Neurosurgery
Stanford University Medical Center
R207 Edwards Building
300 Pasteur Drive
Stanford, CA 94305-5327, USA

E-mail address: gary.heit@kp.org