Behavioral Risk Factors and Interventions, Including Hypnosis for Acute and Chronic Pain After Surgery

Medical observers have long pointed out that the stronger a patient’s expectation for acute pain relief from an illness or procedure, the more likely such relief will occur [Benedetti F. The Patient’s Brain. Oxford: Oxford University Press, 2011]. As the field of acute pain medicine began to differentiate from more general perioperative care, even the earliest studies emphasized the importance of behavioral factors for acute pain control. This continues through the present time [Schug SA, Palmer GM, Scott DA, Halliwell R, Trinca J; APM:SE Working Group of the Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine (2015), Acute Pain Management: Scientific Evidence (4th edition), ANZCA & FPM, Melbourne].

- Controlled trials from more than five decades ago reported that patients who participated more in community activities or felt a positive personal connection with the staff caring for them were more likely to enjoy a positive response to placebo pain medication after surgery [Lasagna L, Mosteller F, von Felsinger JM, Beecher HK. A study of the placebo response. Am J Med 1954; 16: 770-779].
- Nearly 50 years ago, controlled trials of preparing preoperative patients with detailed information about the operations and related procedures they were about to undergo, including the expected pain intensity and duration, reduced their need for morphine analgesia [Egbert LD, Battit GE, Welch CE, Bartlett MK. Reduction of postoperative pain by encouragement and instruction of patients. A study of doctor-patient rapport. N Engl J Med 1964; 270: 825-827].

The picture has emerged of a spectrum of patient preparation and attributes that influence the experience of acute pain after surgery.

- At one end are anxious patients: ill-informed, with few social supports, lacking confidence in the persons or system caring for them, focusing upon and catastrophizing about their pain, feeling little or no control over surgery and their recovery, and lacking commitment to return to their
preoperative employment. In recent years, high-dose, long-term preoperative opioid therapy has been added to this list as increasing numbers of patients present for surgery after such exposure.

- At the other end are patients who trust their families and health-care providers, expect a good surgical outcome, feel in control (including being able to relax at will), turn their attention away from their pain, and are motivated to return to their previous level of function.


In addition to patient education, these modalities include:

- Standard scripts for use during procedures that prepare patients to reframe sensory input in emotionally neutral rather than threatening terms (e.g., “warmth” or “discomfort,” rather than “needle stick”).
- Cognitive behavioral techniques such as guided imagery.
- Modification of attention including distraction, virtual reality, and music.
- Relaxation, including biofeedback and controlled breathing exercises.

**Chronic Postsurgical Pain (CPSP)**

CPSP affects 10 percent to 20 percent of patients. Estimates of its incidence and prevalence vary according to the methods used to identify it, the nature of the operation, and the population surveyed. The transition of acute postsurgical pain to CPSP is complex and reflects biological, psychological, and socioenvironmental factors. [3] Sensory pathways transmit information from damaged tissue to the central nervous system, where psychological factors modulate the experience of pain and individual pain responses.

Psychological factors that predict CPSP include:

- Preoperative depression [4]
- Preoperative anxiety [8]
- Preoperative pain catastrophizing [7, 8]
• Preoperative posttraumatic stress disorder symptoms [9]
• Preoperative fear of surgery [5, 10]
• Early postsurgical kinesiophobia [2, 6]

The foregoing factors may coexist and synergize for greater effects. Younger age and female sex may increase their impact. The factors may vary according to the type of surgery. Social factors may mediate or moderate psychological influences.

Evidence-Based Treatments to Prevent CPSP

To date, there have been few well-designed, prospective randomized controlled outcome studies of psychological treatments that specifically target preoperative risk factors aimed at preventing or reducing CPSP. However, six-week cognitive-behavioral-based physical therapy appears to hold promise as an integrated treatment [1], and there is evolving evidence of the efficacy of mind-body interventions [11] and hypnosis [12] improving pain, disability, and mood in acute trauma and postoperative pain conditions respectively. Targeted, scalable, and widely accessible treatments are needed to meet the needs of the hundreds of millions of individuals across the globe who undergo surgery each year.

REFERENCES

As part of the Global Year Against Pain After Surgery, IASP offers a series of Fact Sheets that cover specific topics related to postsurgical pain. These documents have been translated into multiple languages and are available for free download. Visit www.iasp-pain.org/globalyear for more information.