Pain Management After Craniotomy

Hussein Abukhudair, MD
Chairman,
Department of Anesthesiology & Pain Management
King Hussein Cancer Center
Amman- Jordan
King Hussein Cancer Center

- A not-for-profit organization
- Transformed in the beginning of 2003
- 150 beds
- Comprehensive Cancer Care within Total Patient Care
- Joint Commission Accredited:
  - 2/2006 (JCI: first in Jordan)
  - 11/2007 (DSC: first outside USA)
  - 3/2008 (JCI: Recertification)
- Treated 3366 new cancer patients in 2007.
  Number of old and new patients seen in 2007 is 7812
- Approximately 80% of patients are Jordanian
• Pain accompanying intracranial surgery is minimal and have reduced analgesic requirements, and when present, dangerous to treat.

Myth or Fact?
Myth  Myth  Myth  Myth  Myth
• We all have the desire to relief pain, but also agree to ‘do no harm’
Opioid limitations

• Postoperative neurological exam and outcome
  – Sedation
  – Miosis
    • Mask signs of increase ICP

• Depressed minute ventilation
  – Increase in CO2, intracerebral blood volume, Intracranial pressure & edema
• Why to give opioids with the presumed lack of need?
Why did neurosurgical patients experience less pain?

- perceived a lesser nociceptive stimulus with surgical incision
  - site of surgery.
  - dura is not richly innervated with pain receptors
  - and the brain itself is insensible to pain.

- Had an altered ability to experience pain; (autoanalgesia)
• Surveyed 183 British neuroanaesthetists, and more than half of the 103 valid respondents believed that postoperative neurosurgical pain was undertreated

• Stoneham MD et al Anaesthesia 1996;51:1176–8
• The prevalence of some period of moderate to severe pain in the first 24 postoperative hours ranged from 41% to 84% of patients


• Reported that 60% of their craniotomy patients suffered pain;
• In two thirds of their patients, the pain was either moderate or severe.

Craniotomy Procedures Are Associated with Less Analgesic Requirements than Other Surgical Procedures

Peter J. Dunbar, MB, ChB, Elizabeth Visco, CRNA*, and Arthur M. Lam, MD, FRCP†

Departments of *Anesthesiology and †Neurological Surgery, Harborview Medical Center, University of Washington School of Medicine, Seattle, Washington

(Anesth Analg 1999;88:335–40)
• This confirm the commonly held but recently challenged belief that neurosurgery patients suffer less pain postoperatively than other patients.

• But a small subset of patients, frontal craniotomies, require aggressive treatment of postoperative pain.

• Limitation This study only addressed the time in the postanesthesia care unit, which averaged less than 2 hours for all groups

(Anesth Analg 1999;88:335–40)
• Unpublished data indicate that for both the intensive care unit and the postoperative surgical floor, formal pain assessment by attending neurosurgeons, neurosurgical house staff, and intensivists was rare.
The incidence of pain after a major elective craniotomy

- Patients 187
- Supratentorial (n=129)
- Infratentorial (n=58).

- Moderate to severe pain during the first postoperative day: 69%.
- Pain scores persisted on the second postoperative day: 48%.

- Infratentorial reported more severe pain at rest, than supratentorial on first postop day. (P<0.001)

- Further, patient dissatisfaction with analgesic therapy was significantly associated with elevated pain levels on the first 2 postoperative days. (P<0.001).

What is the optimal approach?

- Unfortunately, for this type of surgery there is little available evidence-based literature to guide the practitioner.
- A multimodal or “balanced” approach in which smaller doses of
  - opioid
  - nonopioid analgesics, such nonsteroidal anti-inflammatory drugs (NSAIDs),
  - local anesthetics,
  - N-methyl-Daspartate antagonists,
  - α 2-adrenergic agonists,
  - are combined to maximize pain control and minimize side effects
Hopkins approach

- Involves a balanced fentanyl based general anesthetic.
- A scalp block appropriate for the anticipated craniotomy is typically placed after the head is secured in pins.
- Postoperatively, analgesia is maintained with acetaminophen and IV fentanyl administered on a PRN basis.
- On the first postoperative day, oral analgesic therapy is initiated with oxycodone.
Barriers to pain management

• **System Barriers**
  - The fact that pain management has low priority
  - The failure to routinely assess and document pain
  - The lack of access to practical treatment protocols
  - The lack of accountability for poor pain management
  - The lack of continuity of care
  - The fragmentation of care.

• **Provider Barriers**
  - Health care professionals often fail to routinely assess and document pain. Health care professionals often lack knowledge and skills to assess and manage pain effectively.
  - There is a lack of practical, effective treatment protocols.
  - Health care professionals lack sufficient knowledge to employ safe equianalgesic principles.
  - Health care professionals may have exaggerated concerns related to the side effects of opioids, especially about tolerance and addiction.
  - Health care professionals may under treat pain because of belief in common misconceptions and myths regarding pain.

• **Patient Barriers**
  - Severe or chronic pain can not be effectively controlled.
  - Pain is always evidence of disease progression.
  - Opioids are always addictive and a treatment of last resort.
  - It is more admirable or socially acceptable to ignore pain.
  - Pain is an unavoidable result of aging or disease.
  - Pain is a deserved punishment.
• Among the many reasons for the undertreatment of pain is the lack of familiarity of physicians (and nurses) with appropriate drugs, drug dosing, and routes of administration
Joint Commission on Accreditation of Healthcare Organizations (JCAHO) - pain management guidelines

Pain is a major public healthcare problem that is treatable and mostly avoidable

- Recognize right of patients to pain management
- Assess and record existence, nature and intensity in all patients
- Assure staff competency in pain assessment and management
- Establish policies/procedures for effective pain management
- Educate patients and families about effective pain management
- Address patient needs for symptom management at hospital discharge

- Endorsed by American Pain Society. Pain management standards will be scored from 2001, hospitals must demonstrate one year of compliance for accreditation
Make pain visible to everybody
Make Pain Visible
First Pain Open Day
Pain Care Bill of Right

As a person with pain, you have a right to:
- Have your report of pain taken seriously and be treated with dignity and respect by doctors, nurses, pharmacists, social workers, physician assistants and other healthcare professionals.
- Have your pain thoroughly assessed and promptly treated.
- Participate actively in decisions about how to manage your pain.
- Be informed and know your options; take with your care provider about your pain, possible causes, treatment options, and the benefits, risks and cost of each choice.
- Have your pain reassessed regularly and your treatment adjusted if your pain has not been eased.
- Be referred to a pain specialist if your pain persists.
- Get clear and prompt answers to your questions, take time to make decisions, and refuse a particular type of treatment if you choose.
Patient & Family Education
On TV
“when you start asking about pain, you can no longer walk away from it. You have to deal with it”

Bonniew Rayan, RN
Treatment of the Cord

“Many wise physicians state that when an infant of equable constitution is born, the umbilical cord should be severed four fingers’ breadth from the umbilicus after it has been well but gently tied with a clean woollen ligature, so as to inflict no PAIN.”

The Canon of Medicine by Ibn Sina 980-1037 AD
CONCLUSIONS

• Physicians and nurses who treat patients after intracranial surgery must simultaneously balance the desire and obligation to treat pain and to do no harm.
• Unfortunately, there is little evidence but much anecdote to guide us.
• We believe that using validated pain assessment tools coupled with a multimodal analgesic approach backed by (RCT) randomized controlled clinical trials will lead us and our patients to a better future.
Thank you....
For your attention.....