Implementing Evidence Based Practice

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Evidence Based Practice

- Integrating individual clinical expertise with the best available external clinical evidence from systematic research, Sackett, 1996
Goal of Evidence Based Research

- I. Clearly identify the issue or problem based on accurate analysis of current knowledge and practice
- II. Search the literature for relevant research
- III. Evaluate the research evidence using established criteria regarding scientific merit
- IV. Choose interventions and justify the selection with the most valid evidence
**Cochrane Library** The "gold standard in evidence-based healthcare," the Cochrane library is a collection of the results of the world's medical research studies, and includes the following databases: * Cochrane Database of Systematic Reviews (CDSR) * Database of Abstracts of Reviews of Effects (DARE) * Central Registry of Controlled Trials * Methodology Register * Health Technology Assessment Database
Rating Level of Evidence

- Level I: Systematic reviews or meta-analysis of all RCT or evidence based guidelines based on systematic reviews of RCTs.

- Level II: Evidence obtained from at least one properly designed RCT.

- Level III. Evidence obtained from well designed controlled trials without randomization.

- Level IV. Evidence obtained from well designed case control and cohort studies.

- Level V: Evidence from systematic reviews of descriptive and qualitative studies.

- Level VI: Evidence from a single descriptive or qualitative study.

- Level VII. Evidence from opinion of authorities and/or reports of expert committees.

(Melyn & Fineout-Overholt, 2006)
The application of results in practice

Evidence based management:
Postoperative pain, pain, surgery, steroids, ……
Post-operative pain management.
In: Guidelines on pain management

The aims of effective post-operative pain management are to:
• Improve the comfort and satisfaction of the patient
• Facilitate recovery and functional ability
• Reduce morbidity
• Promote rapid discharge from hospital (Level of evidence: 1a)

Recommendation
Post-operative pain should be treated adequately, to avoid post-operative complications and the development of chronic pain (Grade of Recommendation: B).

National Guideline Clearinghouse | Post-operative pain ...
www.guideline.gov/content.aspx?id=23897&search=epidural

Pre-operative Patient Preparation
• Patient evaluation
• Adjustment or continuation of medication in order to avoid abstinence syndrome
• Premedication as part of multimodal analgesia
• Behavioral-cognitive interventions for the patient and family with the aim of alleviating anxiety and fear of post-operative pain. This in turn leads to a reduction in the amount of analgesia required postoperatively and better and more efficient pain management (Level of evidence: 1a).

During this phase, patients should be informed about the different options and methods of post-operative analgesia and their benefits and adverse effects. This will enable them to make an informed decision together with their clinicians.

Recommendation
Pre-operative assessment and preparation of the patient allow more effective pain management (Grade of recommendation: A).
Pre-emptive Analgesia
Pre-emptive analgesia is defined as the administration of analgesia before surgical incision to prevent establishment of central sensitization from incision or inflammatory injury in order to achieve optimal post-operative pain control. A variety of pharmacological agents and techniques have been used for this purpose. The results of clinical trials on the efficacy of pre-emptive analgesia are controversial (Level of evidence: 2b).

Systemic Analgesic Techniques
Nonsteroidal Anti-inflammatory Drugs (NSAIDs)
Table 10 in the original guideline document gives dosage and administration details for NSAIDs. Intravenous (IV) administration of NSAIDs should start 30-60 min before the estimated end of surgery, and oral administration should start as soon as possible. Intramuscular administration of analgesic drugs for post-operative pain control is generally avoided because of the variability of serum drug concentrations and the pain caused by the injection.

Recommendations
• NSAIDs are not sufficient as the sole analgesic agent after major surgery (Grade of recommendation: B).
• NSAIDs are often effective after minor or moderate surgery (Grade of recommendation: B).
• NSAIDs often decrease the need for opioids (Grade of recommendation: B).

Paracetamol
Recommendations
• Paracetamol can be very useful for post-operative pain management as it reduces the consumption of opioids (Grade of recommendation: B).
• Paracetamol can alleviate mild post-operative pain as a single therapy without major adverse effects (Grade of recommendation: B).

Opioids are the first-line treatment for severe acute post-operative pain. The key principle for their safe and effective use is to titrate the dose against pain relief and to minimize unwanted effects.

Methods:
Pain management protocols of 393 patients (153 men, 240 women; mean age of 67 years, ranging from 21 to 91 years) from 17 tertiary hospitals after spinal surgery for degenerative spine disease were evaluated using a self-administered questionnaire.

Results:
- A total of 79 (20%) patients received pre-emptive analgesics, which included cyclooxygenase-2 (COX-2) inhibitors, with or without administration of anticonvulsants, immediately before surgery at the time of antibiotic prophylaxis. Postoperative pain was managed mainly by multi-modal therapy (363 cases, 92%), along with various combinations of patient controlled anesthesia (PCA), conventional nonsteroidal anti-inflammatory drugs (NSAIDs), COX-2 inhibitors, and narcotics. Self-reported levels of pain were not significantly different among postoperative multiple modalities of pain management, but were different significantly for preemptive pain management regimens (P < 0.05, independent t-test). The number of patients that reported the self-administrative use of PCA was higher in the no pre-emptive pain management group compared to the pre-emptive group (P < 0.05). In regards to EQ-5D usual activity, depression/anxiety and self-care improved significantly in the pre-emptive pain management group when measured at 2 weeks postoperative (P < 0.05)

- Compression stockings – grade B
  - Initiation just prior to or after surgery until patient is fully ambulatory – Consensus Statement
- Thromboembolic stockings and ASA - inclusive
- Post-op low molecular-weighted heparin (LMWH) or low dose warfarin in high risk patients with anterior-posterior spine surgery – consensus statement
- Timing of LMWH – Level IV safe to start on day of elective surgery – Consensus statement


NASS – Diagnosis and Treatment of Degenerative Lumbar Spondylolisthesis (2009)

- Definition of working diagnosis
- Description of natural history of disease
- Define most appropriate diagnostic test
  - Lateral X-ray – grade B
  - MRI – consensus statement
  - CT myelography – grade B
- Surgery is recommended in symptomatic spinal stenosis with low-grade degeneration resistant to non-surgical intervention – Grade B

Surgical intervention for lumbar disc prolapse (1999; revised 2008)
- 40 randomized controlled trials (RCT) / 2 quasi-randomized trials
- Only 4 trial directly compare surgical to non-surgical treatment
- Conclusions: surgical discectomy for “carefully selected patients” with sciatica provides faster relief for the “acute” attack than conservative therapy. Positive or negative effects of “lifetime” natural history of underlying disease is unclear.
- Microdiscectomy comparable to open discectomy

Surgery for degenerative lumbar spondylosis (2008)
- 31 published studies (all forms of treatment) with variation in quality of study
- 2 recent studies with conflicting results
- Conclusions: limited evidence to support “some” aspects of surgical practice. Further randomized controlled trials warranted
Methylprednisolone

- Methylprednisolone (MP) not be used for the treatment of acute SCI within the first 24 to 48 hours.
- The standard was revised because of the lack of medical evidence supporting the benefits of these drugs in the clinical setting. In fact, the report includes strong evidence that high-dose steroids are associated with harmful adverse effects.
- Opioids for chronic low-back pain (2010)
  - 4 trials (3 tramadol vs placebo)
    - Lack of generalizability, lack of population description, limited functional improvement
  - Conclusions: Benefits of opioids for long term management of chronic LBP is questionable

- Carbamazepine for acute and chronic pain in adults (2009)
  - 12 studies (4 – trigeminal neuralgia patients)
  - Conclusions: no evidence that carbamazepine is effective for acute pain.
- AANS/CNS - Guidelines for the performance of fusion procedures for degenerative disease of the lumbar spine (2005)
- A Guide to Preoperative and Postoperative Patient Care
  www.aann.org/pdf/cpg/aannlumbarspine.pdf
Questions?

"Mr. Osborne, may I be excused? My brain is full."

Thank You....