Evidence-Based Practice: Medical/Surgical Topics

Faculty Disclosure

Becky Bogan, BSN, RNC, and Deb Craigmile, RN, have disclosed no actual or potential conflicts of interest in relation to this educational activity.

During this presentation, the speakers will not be discussing the use of any commercial or investigational product not approved for any purpose by the FDA.

Evidence-Based Practice Scholars: Medical/Surgical Topics

Wednesday, October 14, 2009 & Wednesday, November 11, 2009

Becky Bogan, BSN, RNC
“Around the Clock Pain Medication”

Deb Craigmile, RN
“Antibiotic Associated Diarrhea and Probiotic Treatment”

At the end of this presentation, the learner will be able to:
1. Discuss the process used for exploring evidence-based practice.
2. Articulate key findings of this exploratory work.
3. Describe several proposed clinical changes based on evidence.

Accreditation

Children’s Hospitals and Clinics of Minnesota is accredited as a provider of continuing nursing education by the American Nurses Credentialing Commission on Accreditation.

Children’s Hospitals and Clinics of Minnesota designates this educational activity for 0.5 continuing education hour.

Why EBP for me?

- Interested in finding out “why” we do things “this way.”
- Wanted to learn the process for answering our tough clinical questions.
- Want to be able to help co-workers find answers to clinical questions.

Around the Clock Pain Medication

Becky Bogan BSN, RNC
Background - Why this Topic?

- Pain is often under-treated in children
- Many barriers contribute to inadequate pain control (assessment, dosing, administration)
- Many doubts regarding safe narcotic administration
- Is post-op pain okay or preventable?
- Adequate pain control will lead to better family satisfaction scores.

PICO Question

In the pediatric population, does scheduled pain medication provide better pain control when compared to on-demand pain medication for postoperative pain?

Beginning the Hunt

- CINAHL, Cochrane Collaboration, MDConsult, PubMed
- Search terms: children, pediatric, post-operative pain, analgesia, on demand dosing, scheduled dosing, ATC pain medication

What I Found

- No studies answering my specific question
- Many studies relating to specific surgeries/pain medication
- Barriers to pain medication and pain control

Specific Studies

- Neuro-surgery
  - Scheduled Tylenol and ibuprofen led to decreased pain, LOS, and narcotic use (Smyth, et al., 2004).

- Cardiac surgery
  - Scheduled Tylenol led to marked decrease in PRN narcotic use (Higgins, et al., 1999).
  - Consistent administration of pain medication was found to be imperative to providing maximal pain control and early mobilization postoperatively (Higgins, et al., 1999).
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**Specific Studies**

- **Thoracic/Abdominal Surgery**
  - Adults given scheduled IM narcotic and IM anti-inflammatory drugs had decreased pain, improved quality of sleep, and increased time sitting and standing (DeConno, et al., 1989).

- **Tonsillectomy**
  - No difference found between children receiving scheduled Tylenol versus Tylenol w/Codeine (Sutters, et al., 2003).

**Barriers to Pain Control**

- Children are at increased risk for inadequate pain control due to their decreased ability to communicate their pain to providers (Higgins, et al., 1999; Smyth, et al., 2004).

- **Common question:** Should we wake a sleeping child for pain medication???

- Lack of consensus on the expected pain intensity after surgery- underestimation leads to decreased dosing orders and administration of analgesics (Hamers, et al., 1998).

- Dosing orders frequently found to be below recommended range (Higgins, et al., 1999; Tesler, et al., 1994; Vincent, et al., 2004).

- RN's under-medicate due underestimation of pain, personal attitudes and beliefs, fear of side effects and knowledge regarding pain relief strategies (Hamers, et al., 1998).

- RN's found to administer analgesia outside of recommended dosing orders (Tesler, et al., 1994).

- Lack of time for nursing pain assessment and administration of pain medication (Vincent, et al., 2004).

**Recommendations**

- Adequate pain control leads to better healing, faster recovery and increased patient satisfaction (Vincent, et al., 2004).


- Scheduled analgesia doesn't leave room for underestimation of pain- it is expected to be given (Hamers, et al., 1998).
**Recommendations**

- Provide education to nursing regarding pain assessment and medication pharmacodynamics.
- Encourage nursing to give PRN analgesics regularly through the first 48 hours post-op.
- Encourage attendance at children’s pain conference.
- Utilize pain team
- Consider conducting a research study

**Pain Prevention…Happy Kids!**

**References**


**Antibiotic Associated Diarrhea and Probiotic Treatment**

**Deb Craigmile RN**

Clinical Practice, Informatics and Research Council Presentation

**Introduction**

- Deb Craigmile RN, BSN
- 12 years in Med-Surg, Minneapolis 6th Floor
- Initial interest in EBP began with BSN completion studies
- Obtained BSN in 2007
- Began graduate coursework June 2009 in Nursing Education at Bethel University, St. Paul.

**Why my interest in EBP and the nurse scholar program?**

- Increased awareness of EBP
- Stimulates nursing practice; professional growth
- Multi-disciplinary collaborative efforts
- Dovetailed with educational goals
- Desire to improve patient/family experiences
- Reflects the goals, mission and values of Children’s
Formulating My PICO Question

- Questions were formulated from discussions with med-surg work group.
- Manager, RN’s, multi-disciplinary team members
- Wanted a topic of interest to parents, RN’s and multi-disciplinary group.
- Initially attempted to formulate an efficacy comparison of probiotics vs. yogurt for treatment of diarrhea.
- Probiotic defined, “Live microorganism when administered in adequate amounts confer a health benefit on the host.” (Douglas & Sanders, 2008)
- Diarrhea is common noted side effect in antibiotic treatment in Med-Surg and lactobacillus is common ordered.

Evidence Search

- Allina Library Services at ANW
- Cumulative Index for Nursing and Allied Health Literature - CINAHL
- PubMed / MEDLINE
- Cochrane Library
- Search terms included: diarrhea, children, infants, yogurt, probiotics, lactobacillus
- Registered Dietician

PICO Too Broad

- Research was difficult related to variances in patient base, diagnosis, varying probiotics.
- Too broad, study inconsistencies, difficult to apply to pediatric population
- Advised to narrow the focus; chose diagnosis of antibiotic associated diarrhea.

Revised PICO Question

In children with antibiotic associated diarrhea (AAD) are probiotics such as lactobacillus an efficacious course of treatment?

Adjusted PICO question and obtained Cochrane Review with focus on population and diagnosis of interest

Cochrane Review

- Current review dated 2009
- Meta-analysis of 10 random controlled trials
- Derived from a total collection of 652 studies of similarity
- Total study participants N=1989
- Similar treatment and control sizes
- Broad pediatric population base that includes gender, race, age, socioeconomic status, international studies
Significance and strength of Cochrane Review

- Review is a synthesis of multiple studies
- Rigorous statistical methods of study analysis
- Exhaustive database search by a collaborative group of clinical experts, statisticians and "grey literature"
- Considered the “Silver platter” of information

Synthesis of Cochrane Review

- Antibiotics are known to alter GI microbial balance.
- Probiotics contain beneficial bacteria and are often used to restore GI flora altered by antibiotic use.
- Lactobacillus & Bifidobacterium are common probiotics.

Synthesis of Cochrane Review Continued

- Antibiotics are routinely used for treatment in respiratory infections, meningitis, sepsis, cellulitis.
- AAD is a frequent side effect of antibiotic treatment.
- Severe AAD can cause electrolyte disturbances, dehydration, discontinuation of therapy, altered skin integrity.

AAD defined and incidence

- AAD defined by World Health Organization as 3 or more abnormally loose stools per 24 – 48 hr period.
- Stool frequency may be difficult to quantify in diapered children.
- Incidence of reported AAD in general population is 5-62% occurring from start of treatment to two months post treatment. (Wistrom 2001)
- Reported AAD with broad spectrum antibiotic use 11-40%. (Turck 2003)
- 26-50% of C. diff diagnosis is associated with AAD. (McFarland, 1998)

Medication culprits of AAD

- Antibiotics specific to aerobes
  - Aminopenicillans
    - Ampcillin & Amoxicillin (Johnson, 2000)
  - Cephalosporins
  - Clindamycin

Conclusion of Probiotic use in AAD

- Rationale of probiotic use is to normalize GI flora prophylactically and therapeutically.
- Overall pooled results show probiotics produced a statistically significant reduction in the incidence of AAD.
- Analysis demonstrated that probiotic treatment had higher efficacy than no treatment.
- Probiotic strain of Lactobacillus GG and Lactobacillus indicated statistically significant protective/preventative effect.
- Statistical significance noted in the decrease of mean duration and mean stool frequency by ¾ day.
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**Conclusion continued**

- 14 reported adverse effects of rash, gas, vomiting, increased phlegm and chest pain, but report did not specify if in treatment vs. control groups.
- Remember, antibiotics also cause GI side effects.
- Probiotic mechanism of action and appropriate dosing for AAD prevention is unclear.
- Limitations to study: RCT's favoring probiotics more likely to be published.
- Further trials need to define dosing with age, single strain probiotic efficacy, relationship of probiotic to antibiotic class.

**Conclusion Continued**

- Current data are promising but according to Cochrane standard, evidence is insufficient to routinely recommend the use of probiotics due to study limitations.
- Compelling data to consider probiotic use with antibiotic therapy.

**Influences in Nursing Practice**

- Probiotics may be useful in the prevention of AAD in children on antibiotic therapy, especially with antibiotic treatment targeting anerobes.
- Upon initiation of antibiotic therapy, nurse awareness to AAD can be heightened.
- Educate parents / caregivers on potential diarrheal side effects of antibiotics, symptom management and need for provider follow up with AAD.

**Influences in Nursing Practice**

- Developmental milestones associated to toilet training may be impacted.
- Increased monitoring of skin integrity
  - Skin Integrity Nurse Practitioners
- Clinical references
  - Gastroentritis pathway, Mosby’s Nursing
- Patient education sheets
  - Children’s PFEM’s
    - Spanish, Somali, Hmong
  - Mosby’s Nursing

**Influences in organizational practice**

- Create conditional care sets to address potential for AAD.
- Create probiotic therapy order cue with CPOE of antibiotics.
- Modify or add PFEM’s to include probiotic consideration.
- Educate nurses on probiotic therapy for discussion during family centered and physician rounding.

**EBP Nurse Scholar Program Evaluation**

- Effective experiential learning of EBP
- Interdepartmental nursing dialogue & collaboration
- Identify mentors for future independent and unit based research
- Increased awareness to EBP and process for implementation of system change
- Created personal enthusiasm to advance EBP goals at Children’s!
- Recommend to continue to develop / extend EBP opportunities with bedside RN involvement.
Further review of topic

- Presentation information available on 6th Floor
- Unit Council update
- Includes:
  - Power Point
  - Cochrane Review
  - Associated articles of interest
  - Parent / caregiver education materials

References


