Inclusion & Exclusion Criteria

Methods of Data Collection

Search online databases:
- Cochrane Database of Systematic Reviews
- Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- Medline

Online medical references for characteristics of endometritis and nursing interventions.

Inclusion Criteria (5 articles)
- Published between 2012-2017
- Key words searched:
  - Endometritis and cesarean section
  - Vaginal cleansing
  - Vaginal preparation

Exclusion Criteria (243 articles)
- Duplicate article between database searches
- Not available in full text
- Focus of research did not pertain to the PICO question:
  - Post-operative skin infections
  - Influences of preoperative antibiotic coverage
  - Sexually Transmitted Infections

PICO: Does vaginal cleansing with povidone-iodine prior to cesarean delivery reduce rates of post-cesarean endometritis, compared to no pre-operative vaginal cleansing?

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Problem Background

- Approximately 33% of newborns are born via cesarean in the United States.
- Antibiotics are given prior to cesareans to reduce post-operative infection, but some bacteria that normally inhabit the vagina are antibiotic resistant.
- The risk of post-operative endometritis is 10 times greater after surgical incision of the uterus than it is with vaginal delivery of a newborn.
- Bacteria counts in the uterus increase due to repeat vaginal exams, prolonged active labor, ruptured membranes, intrauterine monitoring, and failed antibiotic administration.
- Endometritis is characterized by fever, lower abdominal pain, uterine tenderness and enlargement, and foul smelling lochia.
- Endometritis negatively impacts maternal/newborn bonding, prolongs hospital length of stay, and increases maternal morbidity and mortality.

Appraisal Methods

<table>
<thead>
<tr>
<th>Article</th>
<th>Level of Evidence</th>
<th>Aspects of Article</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barat et al., 2016</td>
<td>II</td>
<td>Evaluation of the impact of preoperative vaginal cleansing on post-cesarean infection. RCT of 400 low-risk pregnancies in Iran.</td>
</tr>
<tr>
<td>Hassan &amp; Fadel, 2016</td>
<td>II</td>
<td>Evaluation of the impact of preoperative vaginal cleansing on post cesarean endometritis rates. RCT of 150 elective cesarean sections in Egypt.</td>
</tr>
<tr>
<td>Leavell &amp; Clark, 2017</td>
<td>IV</td>
<td>Explanation of Leavell and Clark’s prevention model theory.</td>
</tr>
<tr>
<td>McKibbon et al., 2015</td>
<td>I</td>
<td>Systematic review of 30 systematic reviews and meta-analysis to determine nursing practices that reduce post cesarean infections.</td>
</tr>
<tr>
<td>Rüdin et al., 2016</td>
<td>IV</td>
<td>Pathophysiology, etiology and clinical presentation of endometritis.</td>
</tr>
</tbody>
</table>

Data Summary

- Two RCT found a statistically significant difference (P <0.05) between the use of povidone-iodine solution for vaginal cleansing and no cleansing in favor of vaginal cleansing to reduce the rates of post-cesarean endometritis.
- Both systematic reviews favor the use of preoperative vaginal cleansing as an effective practice to reduce rates of endometritis.
  - Subgroup analysis revealed that vaginal cleansing of women with ruptured membranes significantly reduced the rates of post-operative endometritis from 15.4% to 1.4% (RR 0.33 and CI 0.35-0.79).
- One RCT did not find a statistically significant difference between the use of povidone-iodine solution for vaginal cleansing and no cleansing on the rates of post-cesarean endometritis.
  - All cesareans were elective and low risk. All subjects received post-operative antibiotics which may have decreased the infectious potential for bacteria introduced into the vagina.

Leavell & Clark’s Prevention Model Theory

- Prevention to reduce the burden of mortality and morbidity from disease, illness, and injury
  - Primary: Prevent problems before they occur
  - Secondary: Early detection and intervention to limit disability
  - Tertiary: Correction & prevention of deterioration of the disease state

Practice Implications

- Vaginal cleansing with povidone-iodine solution decreases the rates of post-operative endometritis in women undergoing cesarean section and should be implemented into daily practice.
- There is increased benefit for those with ruptured membranes prior to surgery, and little benefit to those at low risk.
- There were no adverse effects to any participants in the research.
- The intervention is inexpensive in comparison to treatment for endometritis.
- Rates of endometritis should be monitored after implementation into practice and compared to rates prior to implementation.
- Vaginal cleansing is an area for continued research in an effort to strengthen the body of research that already exists.

References are available upon request.