Prevention of Surgical Site Infection
- From pre-operative preparation to post-operative care

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Surgical Site Infection (SSI)

• 2nd most common health care associated infection

• Accounts for 14-16% of hospital-acquired infections

• Increase patients’ morbidity, mortality, length of stay and cost of healthcare institutions

• Increase LOS by an average of 7.5 days
Estimated Annual Impact of SSIs by Specific Procedure

<table>
<thead>
<tr>
<th>Procedure</th>
<th>CABG</th>
<th>Colorectal</th>
<th>THR</th>
<th>TKR</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of procedures</td>
<td>383,000</td>
<td>250,000</td>
<td>293,000</td>
<td>324,000</td>
</tr>
<tr>
<td>No. of SSI</td>
<td>14,975</td>
<td>15,075</td>
<td>4,109</td>
<td>3,726</td>
</tr>
<tr>
<td>No. of Deaths</td>
<td>11,107</td>
<td>11,500</td>
<td>3,809</td>
<td>648</td>
</tr>
<tr>
<td>Total Cost·</td>
<td>$83.5</td>
<td>$127</td>
<td>$196</td>
<td>$63</td>
</tr>
</tbody>
</table>

· In millions Source: CDC NNIS data
Classification of SSI

- Superficial incisional SSIs (skin & subcutaneous tissue)
- Deep incisional SSIs (deep soft tissue & fascia)
- Organ/space SSIs (involve any part of the anatomy)
Most common organisms of SSI

- Staphylococcus aureus (20%)
- Coagulase negative staphylococcus (14%)
- Enterococcus (12%)
Pre Op

• Schedule case - start from clinic (e.g. JRT)

• Emergency admission
  - start from admission
  - even better start from site of injury
Contributing factors to infection

- Environmental factor
  ➢ Clean environment

- MOI (mechanism of injury)
  ➢ Mechanical injury (RTA)
  ➢ Thermal injury (Burns & Scald)
Contributing factors to infection

- Patient factors
  - major contribution factor e.g. knowledge, ability, hygiene, obesity, age, nutritional status, smoking

- Education is very important - education class
- Skin cleansing product, clean pajamas, post op bed preparation
Contributing factors to infection

• Practices

• Guideline & Protocol should be clear and well established
Pre-op preparation of patient

- Identify and treat all infections remote to surgical site whenever possible
- Screen of hyperglycaemia: Patients with a blood sugar > 300 mg/dL during or within 48 hours of surgery had more than 3X the likelihood of a wound infection
Pre-op preparation of patient

• Minimize the pre-operatively LOS: complete pre-op assessments and correct underlying condition before admitted for surgery
• Educate about cessation of smoking: stop at least 30 days before OT
• Maintain normothermia
Pre-op preparation of patient

• Do not remove hair preoperatively unless it will interfere with the operation
• Remove hair immediately before the operation, electric clippers preferred, no shaving
Pre-op preparation of patient

- Education on bath at least night before OT
- Use hibitane for bathing at least the night before surgery
- Bowel preparation if needed
Pre-op preparation of patient

• No antiseptic skin preparation in clinical areas
• Administer prophylactic antibiotic 30 min before surgical incision (relatively narrow spectrum antibiotics, e.g. Cephazolin)
Surgical clipper

- No hair removal is best
- Use of razors to remove hair has been identified as a primary reason for increased surgical site infection
- Clipping is preferred over shaving as clipping causes less epithelial damage
# Surgical clippers

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Infection rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not shaved or clipped</td>
<td>0.9%</td>
</tr>
<tr>
<td>Shaved with a razor</td>
<td>2.5%</td>
</tr>
<tr>
<td>Hair is clipped</td>
<td>1.7%</td>
</tr>
<tr>
<td>Shaved with an electrical razor</td>
<td>1.4%</td>
</tr>
</tbody>
</table>
Preoperative Bathing Recommended Practice

Centers for Disease Control and Prevention, “Guideline for Prevention of Surgical Site Infections,” Infection Control and Hospital Epidemiology, Vol 20, No 4, April 1999

➢ Require patients to shower or bathe with an antiseptic agent at least the night before the operative day (Category IB)

“Chlorhexidine gluconate-containing products require several applications to attain maximum antimicrobial benefit, so repeated antiseptic showers are usually indicated. Even though preoperative showers reduce the skin’s microbial colony counts, they have not definitively been shown to reduce SSI rates”
Post op Mx

- Keep dressing intact for 24-48 hours post-op
- Change dressing with normal saline if soaked
- Hand hygiene before and after performing dressing
- Use aseptic technique to perform dressing
- Use disposable product (e.g. mask, gloves, gown & drapes) to prevent cross-infection
Post op Mx

• Observe for S/S of wound infection: pain or tenderness, localized swelling, redness or heat, fever
• Administer antibiotics as prescribed
• Teach the patients and their carers to report for any wound problem occur
Conclusion

Just simple and basic nursing care is enough

Prevention is base on nursing care and attitude
(good practice)
Thank you