NASAL DECOLONIZATION AND REDUCTION OF SSIs

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PRACTICE PROBLEM

- Surgical site infections (SSIs) are costly to patients' quality of life and to a hospital's finances and reputation.
- Nasal colonization of *Staphylococcus aureus* and methicillin-resistant *Staphylococcus aureus* has been attributed to SSIs in total joint replacements. In the United States,
- 1.2 million total hip and knee procedures are performed annually with an infection rate of 2% to 4%. In California, during 2018-2019, there were 211,417 total joint procedures performed with a 0.46% infection rate.
- The local hospital performed 1,202 total joint procedures were performed, resulting in 6 infections (0.49%).

"For adult patients undergoing elective total joint replacements, will implementing preoperative nasal decolonization, compared to current practice, impact postoperative SSIs caused by MRSA/MSSA in 10 weeks."

METHODOLOGY

Evidence Based Intervention

- Nasal decolonization has been shown to reduce SSIs caused by MRSA/MSSA (Tang et al., 2020).
- A universal approach to decolonization was used to ensure compliance with the intervention (Urias, 2018).
- Povidone-iodine was chosen due to its effectiveness against MRSA/MSSA, does not require testing, does not develop resistance, cost-effectiveness, and more positive patient experiences. (Rezapoor, 2017).

Setting

- The hospital where the project occurred is an 84-bed acute care facility located in Northern California.

Sample

- The project population is all adult males and females, age18 years and older, who are undergoing an elective primary total joint replacement.
- The anticipated sample size is 110-120 patients over a 10-week period.

Translational Science Model

- For this change project, the Knowledge-To-Action (KTA) model was used for its implementation.

Data

- Data collection for the project performed through chart audits pre-and post-intervention.
- The preoperative and postoperative data compared how many SSIs before and after the implementation period.

Outcome of Infection Rate

- No SSIs were reported on patients who underwent the preoperative nasal decolonization (n=117, 0%).

Pre-Post Data Comparison

- A Fisher's Exact Test determined there was no significant difference between the pre-and post-intervention groups on the number of post-operative infections that occurred (p = 1.000)
- Logistic regression was performed to determine if the independent variables, like age, gender, smoking status, and comorbidities, could have contributed to a SSI. The logistic regression did not show any statical significance between the variables and SSI.

Compliance

Procedure

- The nasal decolonization intervention order was placed on all patients who met the inclusion criteria (n=117, 100%), and the nasal decolonization intervention was completed on all patients (n=117, 100%).

Preoperative checklist

- Documentation on the Preoperative checklist was completed on 104 patients (n=13, 88.9%).

Clinical Practice Implications for Future Study

- Quality of life related to patients with SSIs
- Organization impact of SSIs
- Colonization, sources and reduction of MRSA/MSSA
- Replication of this project is needed with larger sample size

This project implies that adding nasal decolonization to the current skin decolonization with CHG wipes leads to a reduction in postoperative SSIs.

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