Development of a Scale to Determine Risk for Developing a Hospital-Acquired Pressure Ulcer During Surgery

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Introduction

- Between 8% - 45% of hospital-acquired pressure ulcers (HAPUs) originate in the operating room (O.R.) due to surgical positioning.1
- Pressure ulcers in surgical patients make up 42% of all HAPUs, costing healthcare a yearly $750 million - 1.5 billion, and adding between 3.5 – 5 days to a patient’s hospital stay.2
- Medicare considers stage 3 and 4, as well as unstageable HAPUs to be preventable (“never events”) as of 2008, and costs associated with them are not reimbursed.2
- Anesthesia providers are held responsible for patient positioning because they cause the patient to be insensate. It is imperative that they understand what puts a patient at risk for HAPUs, so they can intervene.

Methods

- This project was determined to be IRB exempt.
- Searched Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Medline (PubMed) databases for relevant articles addressing pressure ulcer injuries in the O.R.
- Selected 45 articles for their relevant information on pressure ulcer risks.
- Exclusions included the English language.
- Baseline data on HAPU incidence at UIHC was established.
- Developed a pre-operative pressure ulcer risk scale based on the most common risk factors identified in the literature (see below).
- Designed the scale for ease of use by only including objective risk factors and designing the tool with yes or no questions.
- Consulted the nursing informatics team at UIHC to convert the risk scale into a SPA which will alert the anesthetist of high-risk patients.

Results

| Pre-Operative Scale to Identify Patients at High-Risk for Pressure Ulcers in the Operating Room |
|---------------------------------------------------------------|---|
| Type of Screening | Value | Answer/Points |
| Extrinsic | | |
| Surgery | | Y = 4 |
| Surgery scheduled for: | | |
| > 2.5 hours | | Y = 4 |
| > 4 hours | | Y = 4 |
| Intrinsic | | |
| Age: | | |
| > 40 years old | | Y = 4 |
| 70 years old | | Y = 4 |
| Hypertension | | No = Y = 1 |
| Co-Morbidities | | |
| Vascular Disease (Ex: peripheral vascular disease,cornary artery disease,history of stroke) | | No = Y = 1 |
| Obesity or overweight? (BMI ≥ 35 or ≥ 40) | | No = Y = 1 |
| Medications | | |
| Chronic steroid use > 6 months (Ex: prednisone,hydrocortisone, dexamethasone) | | No = Y = 1 |
| Lab values | | |
| Serum albumin < 3.5 g/dl, within previous 3 weeks | | No = Y = 1 |

*Final Score = *Score of 5 or above denotes a high-risk patient
- All patients already have 1 risk factor as they are having surgery.
- Additional risk factors increase the patient’s risk for developing pressure ulcers.
- A patient with a score of 5 or above will be considered high risk.

Evaluation

- An expert in skin care and pressure ulcers evaluated the scale and gave feedback regarding its content.
- Plans to validate the scale once research funding is obtained.
- The nursing informatics team at UIHC is currently working on turning this scale into a BPA in the EMR.
- HAPU incidence data after this scale is implemented will be compared to known baseline incidence.

Practice Implications

- This scale will:
  - Allow UIHC to evaluate the number of patients at high-risk for developing HAPUs undergoing anesthesia.
  - Alert the anesthetist to those patients deemed high-risk, utilizing a BPA that is triggered if the patient has 5 or more risk factors.
  - Heighten awareness of the risks for HAPUs and thus help change practitioner positioning behavior.
  - Help reduce the incidence of HAPUs, which will reduce length of stay and cost of care, as well as improve satisfaction for patients.

Conclusions

- Baseline HAPU data suggests that UIHC must address this problem.
- This pre-operative risk scale will identify patients at risk for pressure ulcers and alert practitioners to high-risk patients using a BPA.
- The developed scale will lower the incidence of HAPUs at UIHC by alerting practitioners of patients who are high-risk due to intrinsic, extrinsic, and comorbid factors. This will help modify practitioner positioning to prevent HAPUs.
- Development of this scale is one step of a larger comprehensive plan to address the problem.
- In the future, identifying the number of high-risk patients undergoing anesthesia may help secure funding for additional HAPU prevention materials and equipment.

References


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