



Early Recovery after Surgery: Enhancing Cesarean Care

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Leadership/Planning

Childbirth is a sacred and exciting moment for families, but it is also particularly vulnerable and, at times, a fear provoking experience for patients and families. Women's and Children's Services at Bryan Medical Center recognize this unique hospitalization experience. Our vision is to relentlessly earn our reputation for high quality care that is leading edge, proven and personalized, and helps to lessen patient feelings of vulnerability and fear. Therefore, we are called to ingrain continual performance improvement, evidence-based practice standards and high expectations for a virtuous culture. Hospital leadership, with the assistance and input of frontline staff, exists to be the promoters of high quality care through our beliefs of integrity, service, excellence, leadership and collaboration with our community.

In 2018, the Perinatal Quality Team created a robust Obstetric Vision of Care Initiative guided by review of care and literature review. From this development, it was evident to the team that new evidence based practice on Early Recovery after Surgery (ERAS) associated seamlessly with Bryan Medical Center's strategic plan. ERAS in obstetrics was a "perioperative care pathway including updated recommendations for preoperative, intraoperative and postoperative phases with, primarily, a maternal focus," (Wilson, et al., 2018). The multidisciplinary team discussed the innovative idea to apply a standardized ERAS pathway to obstetric care and yield proven improved outcomes for cesarean mothers.

Process of Identifying Need

The Perinatal Quality Team is a multidisciplinary team which reviews current data outcomes and trends in the literature (see Attachment 1). This team consists of Maternal Fetal Medicine (MFM) physicians, obstetricians, nursing leadership, anesthesiology, neonatology,

pharmacy and electronic medical record experts. In reviewing the literature with the Perinatal Quality Team, ERAS was found to decrease surgical site infections, increase patient mobility, decrease opioid use, increase patient satisfaction and reduce readmission of postoperative complications (Wilson, et al., 2018; Hedderson et al., 2018; Caughey, et al., 2018). The surgical site infection trends had improved from 2017 after changes to postoperative surgical site care, however, the team recognized the long term impact on mothers necessitated continual improvement on this issue (see attachment 2). Patient mobility after cesarean was slow due to delayed removal of epidural catheter, as much as up to one day post-delivery. Opioid use was promoted as prophylactic treatment by staff, therefore usage during both hospitalization and post hospitalization was high (see attachment 1). Current patient satisfaction and readmission rates were not an identified issue but understood to require continual strives for excellence, much like surgical site infections. Overall, the lack of a standardized cesarean pathway from pre hospitalization, preoperative, intraoperative and postoperative played a role in patient outcomes. The Perinatal Quality Team chose to focus goals on decreasing surgical site infections, increasing postoperative mobility and decreasing opioid use.

With more than one aim being pushed, it was eminent that promoting an adaptable mindset postoperatively was evident and played an effect on patient outcomes (see attachment 1). The Perinatal Quality Team noted that gaining buy-in from both clinic and hospital teams would be vital to the success of the project. Discussions ensued with obstetric office managers to understand inconsistent pre and post hospitalization, patient education, and processes to prevent infection. Collaboration with the anesthesia division led exploration of use of intrathecal morphine intraoperatively to decrease opioid need and increase mobility.

Review of the processes with pharmacy and Maternal-Fetal Medicine (MFM) Providers revealed the need for scheduled multimodal pain control. With the attestation from internal stakeholders as confirmation from other organizations who had initiated a similar concept of ERAS, the Perinatal Quality Team felt it was our turn to take on the challenge to ensure the absolute best care for our cesarean patients possible.

Process Improvement Methods

After confirming the need for an ERAS standardized pathway, nursing leaders utilized the Plan-Do-Study-Act (PDSA) model to develop and continually improve ERAS changes. Utilizing the literature as a guideline for discussion as to changes needed to standardize phases of care to include pre hospitalization, preoperative, intraoperative, and postoperative. Champions of each phase of care kept the teams tasks moving forward each step of the way. With every drastic revision in patient care within an organizational system, come trials. Barriers we found, mercifully, were minimal. The success of buy in was much due to the face to face promotion of the changes by members of Perinatal Quality Team. Connections were made between clinics and inpatient teams. Inpatient nurses were provided a two hour class to review ERAS changes and promote culture change prior to the August 28th, 2019 implementation.

Pre Hospitalization Standardization

Discussion with office managers revealed lack of standardized patient education prior to a scheduled cesarean. In addition, patients were not provided with Hibiclens to shower with prior to scheduled surgery, as is recommended (Wilson et al., 2018). Nursing leaders collaborated with public relations to create a patient brochure entitled 'Preparing for your Cesarean Birth.' This education tool is bagged with a bottle of Hibiclens and given to a mother

in the office when a cesarean is scheduled. The patient is now informed on pre surgery site preparations and what to expect during hospitalization (see attachment 3). Offices elected to order the packets through Medical Staff Services to match other processes for Bryan Medical Center (BMC) obstetric education materials. Feedback from the clinic was given to edit as to material discussed in the brochure. Over the month prior to going live, nurse leaders went to each obstetric office to discuss the new packet use and details of the full ERAS changes at BMC with clinic staff. Office managers were reminded via email of upcoming ERAS changes closer to going live and in weeks following go live. In addition, inpatient nurses were educated on pre hospitalization changes while called to provide Hibiclens shower if not done prior to arrival or for unscheduled cesareans.

Two months following go live of revisions in care, communication was emailed to office managers to request feedback on 'Preparing for your Cesarean Brochure' Hibiclens packet. Responses showed ease of use and supportive of consistent material to provide patients. Periodic assessment of stock showed consistent with the number of scheduled cesareans within each quarter. Three months into ERAS changes, it was identified there was no place for nursing to document Hibiclens was actually completed, therefore, a field was added in the medical record to document if done prior to arrival or upon arrival. Six months into ERAS changes, charts were audited to ensure use of preoperative Hibiclens bath. Scheduled cesareans showed one third were done at home, one third were provided upon arrival to Labor and Delivery, and the other third lacked documentation. The outcome of use of Hibiclens was not consistent with one particular provider or clinic. The audits did identify gaps in hospital

staff documenting if Hibiclens occurred pre admission or during hospitalization required unit re-education on infection prevention documentation.

Preoperative Standardization

Review of the literature sparked discussion amongst anesthesia, MFM and pharmacy as to pre procedural doses of oral Tylenol and intravenous Pepcid (Wilson et al., 2018). This is to promote decreased inflammation to support pain management and increased gut motility to support early advanced diet after surgery. Of course, these medications were in addition to preoperative antibiotics already ingrained in cesarean care.

In addition, anesthesia advocated for the new ERAS pathway to promote nutritional intake prior to surgery to support healing. Patients were allowed clear liquids up to 2 hours prior to surgery, solids up to 6 hours prior to surgery and fatty foods up to 8 hours prior to surgery. The preoperative medications, diet details and advocating for electrolyte beverages up to 2 hours prior were included on the patient educational brochure. Six months into go live, it was identified the preoperative Tylenol 1000mg oral dose may cause the patient to intake the maximum dosage in 24 hours due to scheduled post-operative doses. Therefore, the post-operative dose was lowered to 650mg oral. In addition, nonscheduled or urgent (not emergent) cesareans provided a unique challenge to nursing staff to clarify with providers the timing and priority of preoperative medications. It was clarified these doses are to be given 1-2 hours prior to anticipated surgery time as would then follow similar timeframe to a scheduled case.

Intraoperative Standardization

Anesthesia leaders promoted the use of intrathecal morphine amongst colleagues. This is an opioid sparing technique which allows for pain coverage up to 24 hours after administration, and in some cases even longer. Such coverage is beneficial for postoperative mobility. However, high doses may cause respiratory depression so monitoring was increased to every two hour vitals and sedation scale for the first 24 hours.

Postoperative Standardization

Postoperative standardization was vetted out through physicians, nursing and pharmacy based on literature (Caughey et al., 2018). Goals to increase mobility and reduce opioid use maintained as the focus for changes. The ERAS culture change was dialogued during the nursing two hour class time. Other facility outcomes were shown to gain buy-in and prepare nursing to promote ERAS to patients, especially those who may have experienced a different process with previous cesareans.

Changes included early mobility orders and further regulated pain regimens. Orders were adjusted to dangle at 2 hours postoperative (rather than standard 4 hours) and for patients to be out of bed every four hours with 2 hours total out of bed on post op day one. For the following post-operative days, orders are for out of bed a total of at least 8 hours each day. The changes required resources to support patient mobility and more frequent nursing assessments, therefore, management adjusted nursing assistant and lactation consultant workflows to accommodate a team approach without additional staff. Pain management regimens were adjusted to promote Toradol in recovery with postoperative scheduled Motrin and Tylenol with as needed Oxycodone for breakthrough pain. Prior to ERAS, staff promoted

opioid use to prevent pain, therefore, the benefit of the multimodal approach and non-pharmacological options was discussed during the nursing education class time.

Results

Surgical Site Infections

Prehospitalization and preoperative standardization significantly decreased surgical site infection rates (see attachment 2). No surgical site infections occurred for seven months. Unfortunately in the spring of 2020 several infections did occur, all of which were emergent cesareans lacking support of pre hospitalization and preoperative ERAS changes. Nursing leadership continues to evaluate how to best apply these interventions to the emergent cesarean population.

Patient Mobility

Patient mobility was significantly increased with ERAS implementation (see attachment 1). Patients no longer kept epidural catheters in place postoperatively and intrathecal morphine supported pain to allow for mobility. Nursing staff promoted early mobility with dangling at the bedside two to three hours postoperatively and imbedded to occur during labor nurse to postpartum nurse handoff. Dangling occurred 2 hours sooner after ERAS changes were implemented. Nurses also promoted mothers to walk soon after delivery. In addition, walking for mothers in the halls occurred 12 hours sooner after ERAS changes were implemented.

Opioid use

Opioid use during and following hospitalization was considerably decreased by ERAS standardization (see attachment 4 and 5). Audits show a 60% increase in patients using no

opioids post operatively. Also, a 59.7% increase in patients discharged with no pain medications. This has a significant impact on the community opioid crisis as evidence shows that opioid use during and after surgery to treat pain could increase the risk of long term opioid use (Echeverria-Villalobos, 2020). The use of multimodal techniques is effective in reducing acute pain and, therefore, opioid use. In addition, increased mobility and nutrition helped to promote healing and lessened pain outcomes.

Lessons Learned, Replicability, Sustainability

Pre Hospitalization Standardization

Continual plans to provide a digital version of the 'Preparing for your Cesarean' brochure via patient MyChart view is being considered. It is recognized this may be an ideal addition for patients to have at her fingertips. A consideration of translation of the brochure in different languages must also be reflected upon due to community needs. In addition, continual assessment of use of Hibiclens and brochure packet from the perspective of the patient, clinic, and documentation of use by hospital staff must be evaluated to ensure it is fixed in community processes. A strong connection amongst the clinic to the inpatient team best supports this process, and therefore, best supports the patients.

Preoperative Standardization

Preoperative medications require communication amongst providers, particularly in nonscheduled cesareans. In addition, clear communication to patients as to promotion of diet yet maintaining an empty stomach by the time of surgery is best achieved through a combination of verbal and written materials.

Intraoperative Standardization

Adjustments to intraoperative processes must be promoted amongst anesthesia peers. Education to nursing staff on managing side effects of nausea, vomiting and itching proved meaningful to empower nursing. Frequency of these can be monitored by reports of use of Zofran and Nubain. Utilizing intrathecal morphine requires postoperative close monitoring, therefore, nursing workflows and resources must be assessed prior to implementation. Collaboration of nursing assistants helped to free up nursing resources to ensure monitoring completed efficiently and effectively. In addition, considering the frequency of high risk populations which are at more high risk for respiratory depression (obstructive sleep apnea, obesity, comorbidities, etc.).

Postoperative Standardization

Prior to implementation, nursing resources must be evaluated to realistically meet the frequent administration times, increased patient activity and frequent nursing assessments. In addition, as with other changes, gaining buy-in by involving nursing and showing patient benefit is vital to success of an ERAS program.

Conclusion

Collaboration amongst a multidisciplinary team of clinic and hospital personnel to create a standardized ERAS pathway for cesarean delivery shows improved care outcomes related to surgical site infections, patient mobility and opioid use. Although development and reassessment of the pathway is labor intensive, benefit to patient outcomes proves ERAS to be a worthy undertaking.

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