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Pain Control Options for the Parturient:
Pamphlet Development for Patient Education

Alyssa R. Jimerson, BSN, RN

Introduction of the Problem

During the laboring period, the parturient makes multifaceted decisions regarding the availability of pain control options. Traditionally, epidural analgesia has been requested as the primary pain relief method for the parturient despite the availability of other viable pharmacological and non-pharmacologic options (Pitter & Preston, 2001; Vargens, Silva, & Progianti, 2013). In addition to missed pain control options, literature has revealed parturient women who did not receive education on pain control methods before the birthing process had unrealistic perceptions of pain management (Meeks, 2016).

For the parturient to select the appropriate methods to control pain for the patient-specific birthing plan, education regarding the different pain control methods must be offered in a comprehensible manner so an informed decision can be made (Nabukenya, Kintu, Wabule, Muyingo, & Kwizera, 2015). With respect to health literacy, the development of an educational pamphlet may improve parturient knowledge of pain control options which will translate into favorable patient outcomes. Therefore, the purpose of this project was to engage the parturient in the decision-making process and address individualized interventions for pain control of the parturient through the development of an educational pamphlet for a tertiary care center in central Illinois. In 2019, 1,947 total deliveries occurred at the host facility, including 1,261 vaginal deliveries with an 87% epidural rate, and 686 cesarean sections with a 35% total cesarean section rate, yet no pamphlet containing the pain control options available at the tertiary care center existed, thus, providing clinical relevance for this project.

Literature Review

During labor, the body is under physiologic stress, including contractions of the uterine muscles and pressure exerted on the cervix. As a result, the parturient experiences pain. If left untreated, pain can have negative consequences on the body of the parturient, such as tachycardia and hypertension, due to activation of the sympathetic nervous system (Turnbull & Bell, 2014). Health care providers have multiple options for alleviating pain during the laboring process. Neuraxial anesthesia, peripheral nerve blocks, pharmacological, and non-pharmacological measures are the primary interventions for controlling pain.

After review of the literature, preferences on methods to adequately control pain in the parturient population vary. Vargens and colleagues (2013) and Sng and colleagues (2015) acknowledge the type of delivery, patient-specific pathology, potential fetal distress, as well as patient preference collectively dictate which pain management measures are employed. The review also identified a lack of education regarding the various methods of pain control, thus leading to misunderstanding of the benefits and risks of each method and missed pain relief opportunities for the parturient population (Vargens et al., 2013).

The most common method of pain control in the parturient population was found to be invasive methods, such as neuraxial anesthesia. A systematic review by Vargens and colleagues (2013) attributed the choice of invasive methods to the fear of labor pain and lack of information presented to the parturient regarding the other various pain control options available. The use of non-neuraxial measures through a patient-controlled analgesic system which uses remifentanyl intravenously has also been recommended. The literature argues that remifentanyl is short-acting, rapidly crosses the placenta, and is quickly metabolized in the fetus. The onset of remifentanyl is 30 to 60 seconds and peaks in 2.5 min PCA regimens include bolus doses of 15 to 50 mcg with a lockout time of one to five min (Boterenbrood, Wassen, Visser, & Nijhuis, 2018). As a result, the

drug produces analgesia for the parturient during all phases of labor while avoiding neonatal depression (Boterenbrood et al., 2018). Yu and colleagues (2016) stated however, remifentanyl-induced acute opioid tolerance and opioid-induced hyperalgesia can occur at doses higher than 2 mcg per kg, but can be prevented by reducing the dosage by simultaneous use of multimodal analgesia.

Anesthesia providers must also pay particular attention to the parturient women who take buprenorphine for opioid addiction. Buprenorphine is an opioid agonist-antagonist which helps prevent withdrawal associated symptoms caused by stopping other opioids (Sen, 2016). Because this population is still taking an opioid, using other opioids for pain relief during labor can cause severe respiratory depression. Despite the availability of multiple pain control options, if the information is not presented in a manner that the parturient can comprehend, Nabukenya and colleagues (2015) explained an informed decision regarding pain control options cannot be made, therefore negatively impacting the laboring process.

An individual's ability or capacity to understand and utilize basic health information and services needed to make an appropriate health decision is described as health literacy (De Oliveira, McCarthy, Wolf, & Holl, 2015). Insufficient health literacy has been estimated to negatively impact over 90 million Americans (De Oliveira et al., 2015). For comprehension of health-related materials, Wiener & Wiener-Pla (2014) defined an average reading level as between sixth and eighth grade. In addition to a sixth through eighth grade reading level, the literature found the inclusion of illustrations or photographs along with large font to improve comprehension of health-related materials (Wiener & Wiener-Pla, 2014).

Project Methods

The purpose of the pamphlet was to explain the physiology of labor pain, neuraxial anesthesia, general anesthesia, pharmacologic agents, and non-pharmacologic agents available for pain control. Information on who provides the pain relief options available in the facility's obstetrics department was also included in the pamphlet. The pamphlet was written to reflect a reading level deemed appropriate by the marketing department at the host facility, a tertiary care hospital in central Illinois and provided pictures to aid in comprehension. The intent of the project was for the pamphlet to be utilized in all settings in the obstetrics department at the host facility which parturient women are present, such as prenatal visits, birthing classes, and birth suite tours.

This project utilized a non-experimental design to increase parturient women's knowledge of pain control options available in the obstetric setting at the host facility. Interaction with patients and collection of patient information was not involved in this project. Subsequently, this project fell within the quality improvement guidelines and therefore was deemed exempt from IRB from both Southern Illinois University Edwardsville and the review committee at the tertiary care center where the pamphlet was implemented.

Evaluation

After the creation of a prototype pamphlet for the host facility, a presentation displaying the pamphlet and literature findings was conducted. A 10-question survey comprised of true/false questions and a Likert scale was provided to staff members in attendance for voluntary completion. Survey results underwent review to examine the effectiveness of the educational presentation as well as the pamphlet's content, look, readability, and usability.

Eight providers completed the survey. Three providers were certified registered nurse anesthetists (CRNAs) (37.5%) and the other five providers were registered nurses (RNs) (62.5%)

from the obstetrics department. 100% of the participants agreed that the material presented in the pamphlet was appropriate for teaching patients about the pain associated with labor, adequately explained who provides the labor pain management services, and was visually appealing. The most divided result corresponded with whether or not the pamphlet's reading level was appropriate for all patients. Only 37.5 % of the participants agreed that the pamphlet's reading level was suitable for all patients, while 62.5% noted the reading level was not appropriate for all patients. Despite this divided response, 100% of the participants did state they would be likely to utilize the pamphlet.

The variance in responses regarding the appropriateness of the pamphlet's reading level was attributed to the fact that the pamphlet prototype was determined to be at a sixth-grade reading level, whereas the host facility aimed to have their health care materials written at a fourth-grade reading level. Overall however, the results of the post implementation survey concluded that the pamphlet's content, look, readability, and usability was appropriate for educating parturient women on the various pain relief options available at the host facility. While the pamphlet prototype proved to serve as a sound foundation for the finalized pamphlet, the final version of the pamphlet was limited to the marketing department's standards for educational materials at the host facility. Ultimately, the pamphlet prototype went on to undergo minor vocabulary and visual changes by the host facility for use in the obstetrical department.

Impact on Practice

The short-term goal of this project was to develop an evidence-based pamphlet prototype explaining the various pain relief options for parturient women in respect to health literacy at a tertiary care center in central Illinois. The long-term goal was to aid in the production of finalized pamphlet for utilization in the host facility based off of the prototype created for this

project. After the prototype underwent review and minor changes from the marketing department, a finalized pamphlet was created for the host facility to utilize and improve patient education. Currently, the finalized pamphlet is being added to the brochure section of the print shop at the host facility to allow for ordering. Once available to order, the obstetrics department will place an order to use in the multiple obstetrical areas at the host facility as soon as it's available.

Limitations of the project included discrepancies in the health literacy level the pamphlet was written. The prototype was written at a sixth-grade reading level, which the literature deems appropriate. However, the host facility aimed to have their health care materials written at a fourth-grade reading level, so adjustments to the pamphlet were made by the marketing department prior to its' finalization. In retrospect, communication between the host facility's marketing department and myself would have been beneficial prior to creating the pamphlet and minimized the project's limitations.

Conclusion

A need to employ pain control options throughout all phases of labor was revealed through findings in the literature review. Patient education regarding the various pain control options allows for a realistic expectation of labor pain management. The educational pamphlet prototype which presents different labor pain management options was the tool designed to empower the parturient to make informed individualized decisions about her care.

With sustainability in mind, future implications of the project would include adaptation of the pamphlet with new pain relief options that will emerge in obstetric anesthesia. Additionally, adapting the pamphlet to incorporate vulnerable populations who cannot read the pamphlet in English could occur by translating the pamphlet into different languages most

prominently encountered at the host facility. Prior to any adaptations of the pamphlet, a follow-up with staff to assess how often the pamphlet is used and if the parturient population is understanding the information would be useful to address any areas of weakness.

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