Transformative Medicine (T-Med)

Volume 1 | Number 1 Article 7

March 2022

Evaluating the Effect of Neuraxial Analgesia on External Cephalic Version Success

Sarah Dreibelbis
Reading Hospital - Tower Health

Peter F. Schnatz
Reading Hospital - Tower Health

Edwin Newton
Reading Hospital - Tower Health

Recommended Citation

Dreibelbis S, Schnatz PF, Newton E. Evaluating the Effect of Neuraxial Analgesia on External Cephalic Version Success. *Transformative Medicine (T-Med)*. 2022; 1(1):27-29. doi: https://doi.org/10.54299/tmed/snqq1991.

Evaluating the Effect of Neuraxial Analgesia on External Cephalic Version Success

Keywords

external cephalic version, neuraxial anesthesia, cesarean section, quality improvement

Cover Page Footnote

Assistance with editing of the manuscript was done by OBGYN faculty attending physicians Dr. Peter Schnatz and Dr. Byron Newton.

Evaluating the Effect of Neuraxial Analgesia on External Cephalic Version Success

Sarah Dreibelbis[1], Peter F. Schnatz[2], Edwin Newton[3]

1. Department of OBGYN, Reading Hospital-Tower Health, West Reading PA , sarah.dreibelbis@towerhealth.org
2. Department of OBGYN, Reading Hospital-Tower Health, West Reading, PA and Department of OBGYN, Drexel University College of Medicine, Philadelphia, PA
3. Women's Health Institute of South Texas, Edinburg TX

Published online March 2022

ABSTRACT

BACKGROUND: External cephalic version (ECV) can be a helpful procedure in attempts to decrease the overall cesarean section rate. ECV involves the application of external pressure to the pregnant woman's abdomen in attempts to turn the fetus to a vertex presentation and allow for subsequent vaginal delivery. Tocolytics are routinely used to increase ECV success rates, and neuraxial analgesia has been presented as another adjunct to increase overall success. The purpose of this quality improvement project is to evaluate the effect neuraxial analgesia may have on ECV success rates.

METHODS: Patients scheduled for ECV between the dates of January 2020 and September 2021 were reviewed. Data collected includes patient age, BMI, gestational age, success of ECV and use of neuraxial analgesia (epidural anesthesia).

RESULTS: Of the 21 patients, 6 (29%) were found to be vertex on their scheduled ECV date. Six (29%) patients who did not have an epidural failed ECV. Four (19%) patients who had an epidural failed ECV. Five (24%) patients who had an epidural had a successful ECV. Interestingly, no patients had a successful ECV without an epidural.

CONCLUSION: No attempts at ECV were successful without an epidural in the 21 patient charts reviewed. Further evaluation through expanded chart review to increase the sample size would allow for meaningful statistical evaluation of this salient finding.

KEYWORDS: external cephalic version, neuraxial anesthesia, cesarean section

INTRODUCTION

In the United States, the average rate of cesarean delivery is 31.7%.[1] External cephalic version (ECV), which involves applying external pressure to a woman's abdomen to turn the fetus, is a viable option to attempt to increase the proportion of vertex presentations.[2] This technique can be helpful to decrease the overall cesarean section rate. Previous research is encouraging regarding neuraxial anesthesia impacting success rates of ECV. In a meta-analysis by Magro-Malosso et al, which reviewed nine randomized clinical trials, women who received neuraxial anesthesia had a significantly higher incidence of successful external cephalic version, cephalic presentation in labor, and vaginal delivery compared to those who did not.[3] Neuraxial anesthesia in combination with tocolytic therapy may also increase ECV success rate.[2] Another meta-analysis by Goetzinger et al also found that regional anesthesia was associated with higher ECV success.[4] Furthermore, both spinal and epidural anesthesia were associated with increased ECV success.[4]

The current standard of care at Reading Hospital for ECV includes the use of terbutaline (a tocolytic), with neuraxial analgesia left to provider and patient shared decision making. The purpose of this quality improvement project is to evaluate the success rate of external cephalic version when neuraxial anesthesia (in the form of epidural anesthesia) is utilized versus no neuraxial anesthesia at the Reading Hospital/Tower Health labor and delivery unit.

Correspondence to Sarah Dreibelbis
sarah.dreibelbis@towerhealth.org

Disclosure Statement: The authors have no conflicts of interest to declare.

METHODS

Patients who were scheduled for external cephalic versions from January 2020 to September 2021 were compiled by encounter type and reviewed. A total of 21 patient charts were identified as being scheduled for an external cephalic version (ECV) during this time frame and were included in a manual chart review. Specific demographic data was collected for each patient who was scheduled for an ECV which included: gestational age at the time of ECV, patient age and patient BMI. Outcomes were then stratified into 5 main groups which included: patients who had fetal vertex presentation on admission and thus were discharged without ECV attempt, patients who did not receive neuraxial analgesia and version was unsuccessful, patients who did not receive neuraxial analgesia and version was successful, patients who did receive neuraxial analgesia and version was unsuccessful, and patients who did receive neuraxial analgesia and version was successful. All patients received a tocolytic (terbutaline) prior to attempted ECV as per routine protocol. Fetal monitoring was performed prior to and after the version attempts for all patients. The decision to administer neuraxial analgesia was left up to the discretion of the attending physician after a discussion with the patient. Given the small sample size, the goal of this chart review was to identify any salient findings that may elucidate avenues for further inquiry by larger chart review, as meaningful statistical analysis could not be performed with the evaluated sample size. SQUIRE 2.0 guidelines were followed in the writing of this manuscript.[5]

RESULTS

Table 1 summarizes the findings of the chart review performed. Of the 21 patients, six (29%) were found to be vertex on their scheduled ECV date. Six (29%) patients who did not have an epidural failed ECV. Four (19%) patients who had an epidural failed ECV. Five (24%) patients who had an epidural had a successful ECV. Interestingly, no patients had a successful ECV without an epidural. No complications were reported related to attempted ECV's such as rupture of membranes, cord prolapse, terminal fetal bradycardia, placental abruption or need for emergent cesarean delivery. The average BMI of patients who received an epidural was lower compared to patients who did not receive an epidural. Patients who failed ECV with an epidural were older on average compared to the other groups. An additional piece of data collected was the type of delivery the patient ultimately had, regardless of ECV success. Unfortunately, 5 of the 21 patients transferred care to an outside facility with delivery type not available for review. Given the small sample size, with nearly one fourth of the patients delivering at outside facilities, mode of delivery (vaginal or cesarean section) was not evaluated further.

DISCUSSION

Perhaps the most salient finding from the limited sample size included in this quality improvement project was that no patients had a successful ECV if they did not have an epidural. For patients who did have an epidural, four of them were unsuccessful while five were successful. This finding of decreased success without

Table 1. Summary of Patient Findings

	Vertex on Presentation	Failed without Epidural	Successful without Epidural	Failed with Epidural	Successful with epidural
Total Number of Patients	6	6	0	4	5
Gestational Age Range	36w4d – 40w5d	37w3d – 38w5d	N/A	37w0d – 39w2d	37w0d – 38w1d
Average BMI	32.8	33.9	N/A	29.5	28.9
Average age	26.3	24.5	N/A	31	29.4

https://scholarcommons.towerhealth.org/t-med/vol1/iss1/7
DOI: https://doi.org/10.54299/tmed/snqq1991

an epidural mirror the findings of previous studies which mentioned greater success rates with the use of neuraxial anesthesia. Additional factors influence the success of ECV aside from neuraxial anesthesia, such as BMI, parity, placental location and type of fetal malpresentation.[6] Success of ECV decreases with nulliparity, higher BMI and anterior placental location.[6]

The largest limitation related to this quality improvement project is the small sample size. Approximately 3% of fetuses are in breech presentation at term, so the population in which an ECV can be offered is quite low. Additionally, patients have the option to decline a version in favor of a cesarean section which further lowers the total amount of versions performed. An additional limitation includes the varied experience of providers performing the ECV (resident physician compared to attending physicians among different practices). Placental location and parity were not assessed in this review, which may factor into overall success rates.

No ECV attempts were successful without an epidural, prompting further inquiry through a larger chart review to increase the sample size and allow for meaningful statistical analysis or a future randomized trial. Pending further study, the goal of this project moving forward is to develop a policy or checklist for analgesia in patients scheduled for external cephalic version to allow for consistent patient care and improved satisfaction and outcomes.

REFERENCES

1. Faststats. CDC. FastStats. Births - Method of delivery. https://www.cdc.gov/nchs/fastats/delivery.htm. Accessed November 29, 2021.

2. External cephalic version: ACOG practice bulletin, Number 221. Obstetrics & gynecology. 2020;135(5):e203-e212. https://doi.org/10.1097/AOG.0000000000003837

3. Magro-Malosso ER, Saccone G, Di Tommaso M, Mele M, Berghella V. Neuraxial analgesia to increase the success rate of external cephalic version: A systematic review and meta-analysis of randomized controlled trials. American journal of obstetrics and gynecology. 2016;215(3):276-286. https://doi.org/10.1016/j.ajog.2016.04.036

4. Goetzinger KR, Harper LM, Tuuli MG, Macones GA, Colditz GA. Effect of regional anesthesia on the success rate of external cephalic version: A systematic review and meta-analysis. Obstetrics & gynecology. 2011;118(5):1137-1144. https://doi.org/10.1097/AOG.0b013e3182324583

5. SQUIRE | SQUIRE 2.0 Guidelines. (2020). SQUIRE 2.0 Guidelines. http://squire-statement.org/index.cfm?fuseaction=Page.ViewPage&PageID=471. Accessed November 29, 2021.

6. Dahl CM, Zhang Y, Ong JX, et al. A multivariable predictive model for success of external cephalic version. Obstetrics & gynecology. 2021;138(3):426-433. https://doi.org/10.1097/AOG.0000000000004518