



ELSEVIER

www.obstetanesthesia.com

ORIGINAL ARTICLE

Impact of epidural analgesia on cesarean and operative vaginal delivery rates classified by the Ten Groups Classification System

M. Lucovnik,^a I. Blajic,^b I. Verdenik,^a T. Mirkovic,^b T. Stopar Pintaric^{b,c}

^aDepartment of Perinatology, Division of Obstetrics and Gynaecology, University Medical Centre Ljubljana, Slajmerjeva 4, 1000 Ljubljana, Slovenia

^bDepartment of Anesthesiology and Intensive Therapy, University Medical Centre Ljubljana, Zaloska 7, 1000 Ljubljana, Slovenia

^cInstitute of Anatomy, Medical Faculty Ljubljana, Vrazov trg 2, 1000 Ljubljana, Slovenia

ABSTRACT

Background: The Ten Group Classification System (TGCS) allows critical analysis according to the obstetric characteristics of women in labor: singleton or multiple pregnancy, nulliparous, multiparous, or multiparous with a previous cesarean delivery, cephalic, breech presentation or other malpresentation, spontaneous or induced labor, and term or preterm births. Labor outcomes associated with epidural analgesia may be different among the different labor classification groups. The aim of this study was to explore associations between epidural analgesia and cesarean delivery, and epidural analgesia and assisted vaginal delivery, in women classified using the TGCS.

Methods: Slovenian National Perinatal Information System data for the period 2007–2014 were analyzed. All women after spontaneous onset or induction of labor were classified according to the TGCS, within which cesarean and vaginal assisted delivery rates were investigated ($P < 0.003$ significant).

Results: Data on 207 525 deliveries (and 211 197 neonates) were analyzed. In most TGCS groups women with epidural analgesia had lower cesarean delivery rates. Women in group 1 (nulliparous term women with singleton fetuses in cephalic presentation in spontaneous labor) with epidural analgesia had a higher cesarean delivery rate. In most TGCS groups women with epidural analgesia had higher assisted vaginal delivery rates.

Conclusion: Epidural analgesia is associated with different effects on cesarean delivery and assisted vaginal delivery rates in different TGCS groups.

© 2018 Published by Elsevier Ltd.

Keywords: Cesarean delivery; Epidural analgesia; Assisted vaginal delivery; The Ten Group Classification System

Introduction

Epidural analgesia (EA) is the gold standard for pain relief during labor and delivery. Multiple randomized controlled trials show lower maternal pain scores and higher maternal satisfaction with epidural analgesia during labor compared to other analgesic techniques, such as systemic opioids and nitrous oxide.^{1–4} In spite of its efficacy and increased use there has been significant controversy regarding the impact of EA on labor outcomes. Although evidence suggests that EA does not increase the overall rate of cesarean delivery,⁵ its impact on other

outcomes, such as need for assisted vaginal delivery, has been studied much less frequently and thoroughly.^{5–7} Some observational studies have found an association between EA rates and rates of assisted vaginal delivery.^{6,7} Moreover, it is not clear if data on labor outcomes associated with EA can be generalized to include all groups of women in labor. Obstetric characteristics such as multiple birth, preterm labor, fetal presentation, spontaneous versus induced labor, and previous uterine surgeries may impact labor progress and affect maternal or neonatal outcomes. Many of these characteristics have not been adequately accounted for in randomized trials published to date, since smaller sub-groups (e.g. breech or twin labor) were not adequately represented due to their relatively small contribution to the overall number of deliveries.^{1–4}

Accepted January 2018

Corresponding author at: Dr M. Lucovnik, University Medical Centre Ljubljana, 4 Slajmerjeva, 1000 Ljubljana, EU, Slovenia.

E-mail address: miha.lucovnik@kclj.si

The Ten Group Classification System (TGCS) was first described in 2001 and originally utilized to assess cesarean delivery rates.⁸ The intention was to introduce a generic perinatal classification to assess all perinatal events and outcomes, including cesarean delivery. The TGCS is structured to make it relevant to clinicians and laboring women, and to provide a common language for discussion on safety, quality of care and perinatal audit.⁹ The TGCS has been endorsed by the World Health Organization and the International Federation of Gynecology and Obstetrics and is increasingly used by labor and delivery units to report their cesarean delivery rates.^{10–13} It has also been recommended that other events and outcomes surrounding labor and delivery are analyzed using this classification.^{11–13} Although the TGCS has been used in many different situations it has, to our knowledge, never been used to analyze the effects of EA on labor outcomes.

The objective of this study was to use the TGCS to evaluate the potential associations between EA and cesarean and assisted vaginal delivery, according to the TGCS labor types. We compared women who did, versus did not, receive EA within each of the TGCS groups.

Methods

We analyzed Slovenian National Perinatal Information System (NPIS) data for the period 2007 through 2014. An eight-year period was chosen to avoid changes in clinical practice that may occur over a longer time, but to be long enough to provide a meaningful analysis of rarer outcomes. Slovenia is a European Union member state in Central Europe, with 2.1 million inhabitants and approximately 20 000 deliveries per year. Health care in Slovenia is a public service provided through the public health service network. Perinatal care is almost entirely covered by compulsory health insurance, which is publicly funded. The overall cesarean delivery and assisted vaginal delivery rates in Slovenia remain relatively low, with a cesarean rate of 17.4% and assisted vaginal delivery rate of 3.2% during the period 2007–2011.¹³ During the same period, the country's overall perinatal morbidity rate was 0.5%.¹³ This retrospective study of anonymous entries was granted exemption from approval by the ethical committee.

Since 1987 the NPIS has stored data from all deliveries in Slovenia at ≥ 22 weeks' gestation or when the birth weight is ≥ 500 g. Registration is mandatory by law in the country's 14 maternity units and more than 140 variables are entered into a computerized database by the attending midwife and doctor. Patient demographics, family, medical, gynecologic and obstetric history, data on the current pregnancy, labor and delivery, postpartum period, and neonatal data are collected. To assure the quality of data collected, controls are built in the computerized system, data are audited periodically,

and comparisons are made with international databases with which Slovenia participates.

The TGCS (Table 1) was used to assess labor and delivery outcomes. We analyzed incidences of cesarean delivery and assisted vaginal delivery. Vacuum extraction is the most common intervention in vaginal delivery in Slovenia (incidence of vacuum extraction 2.5–3% versus $<0.5\%$ for forceps).⁷ In breech presentations (TGCS groups 6 and 7) assisted vaginal delivery represents forceps-assisted delivery of the after-coming head. Only women in labor, either after spontaneous onset of labor or after induction of labor, were included in the study. Women undergoing planned cesarean delivery were excluded from the analysis.

We investigated cesarean deliveries and assisted vaginal deliveries among women who received EA during labor, compared with those who did not, for each of the TGCS labor types. For continuous variables (maternal age, maternal body mass index (BMI), and neonatal birthweight), data were expressed as mean \pm standard deviation. Categorical data (occipito-posterior presentation, cesarean delivery, and assisted vaginal delivery) were summarized as number counts and percentages. For comparison between the two study groups (EA vs. non EA) the Student's t-test was used for continuous variables and the Chi-square test for categorical variables. To adjust for multiple comparisons we changed from a significance level of <0.05 to <0.003 (in accordance to Bonferroni correction for 15 groups). For this preliminary study only descriptive statistics are presented and modelling to account for confounders was not performed. The software used for statistical analysis was IBM SPSS Statistics for Windows Version 21.0 (Armonk, NY: IBM Corp.).

Results

During the study period, there were 207 525 deliveries fulfilling the inclusion criteria. Table 2 presents the numbers of deliveries in women who did and did not receive EA, according to the TGCS labor types. Basic maternal (age, BMI) and neonatal (birth weight, occipito-posterior presentation) characteristics that could act as confounders in the analysis of incidences of cesarean and/or operative vaginal delivery rates are also presented for each of the groups. Statistically significant differences in maternal age, BMI, birthweight and rates of occipito-posterior presentation were found in most groups from 1 to 5.

Table 3 shows the number count and percentages of cesarean deliveries and assisted vaginal deliveries in the group of women who received EA during labor, versus those who did not. The cesarean delivery rates were lower among women with EA versus women without EA in all the TGCS groups, except group 3 (multiparous term women with singleton fetuses in cephalic presenta-

Download English Version:

<https://daneshyari.com/en/article/8617351>

Download Persian Version:

<https://daneshyari.com/article/8617351>

[Daneshyari.com](https://daneshyari.com)