Available online at www.sciencedirect.com

ScienceDirect

journal homepage: http://www.elsevier.com/locate/medici

Original Research Article

Cesarean section rates in Lithuania using Robson Ten Group Classification System

Eglė Barčaitė *, *Gintarė Kemeklienė, Dalia Regina Railaitė, Arnoldas Bartusevičius, Laima Maleckienė, Rūta Nadišauskienė*

Department of Obstetrics and Gynaecology, Medical Academy, Lithuanian University of Health Sciences, Kaunas, Lithuania

ARTICLE INFO

Article history:
Received 7 July 2014
Accepted 27 August 2015
Available online 14 September 2015

Keywords:
Cesarean section
Robson Ten Group Classification System
Clinical audit
Classification of cesarean section

ABSTRACT

Background and objective: The aim of this study was to analyze cesarean section (CS) rates using Robson Ten Group Classification System (TGCS) and to identify the main contributors to the overall CS rate in Lithuania.

Materials and methods: A prospective cross-sectional study was carried out. All women who delivered between January 1 and December 31, 2012, in Lithuania were classified using the TGCS. The CS rates overall and in each Robson group were calculated, as was the contribution of each group to the overall CS rate.

Results: The CS rate was 26.4% (6697 among 25,373 deliveries) in 2012. Nulliparous women with single cephalic full-term pregnancy in spontaneous labor (Group 1) or who underwent induction of labor or prelabor CS (Group 2) and multiparous women with a previous CS (Group 5) were the greatest contributors (67.7%) to the overall CS rate. In addition, significant variation of CS rates between different institutions was observed, especially in women with single cephalic full-term pregnancy without previous CS (Groups 1–4), showing big differences in obstetric care across country.

Conclusions: Women in Groups 1, 2 and 5 were the largest contributions to the overall CS rate in Lithuania. It seems that efforts to reduce the overall CS rate should be directed on increasing vaginal birth after CS and reducing CS rates in nulliparous women with single cephalic full-term pregnancy (Groups 1 and 2).

* *Corresponding author at*: Department of Obstetrics and Gynaecology, Medical Academy, Lithuanian University of Health Sciences, Eivenių 2, 50161 Kaunas, Lithuania.
E-mail address: eglebarcaite@yahoo.com (E. Barčaitė).

Peer review under the responsibility of the Lithuanian University of Health Sciences.

Production and hosting by Elsevier

http://dx.doi.org/10.1016/j.medici.2015.09.001

1. Introduction

Cesarean section (CS) is the most common obstetric intervention and in some high income countries has reached the epidemic level. The WHO declares that the CS frequency of more than 10%–15% is unjustified [1]. However, the summarized data of 34 countries have shown the increase of CS rates from 14% of all births in 1990 to nearly 20% in 2000 and 26% in 2009 [2]. In recent years the CS rates in Finland was 15.7%; in Denmark, 20.6%; in Ireland, 26%, in Italy, 38.4%; and even 42.7%, in Turkey [2]. The CS rate in Lithuania has increased more than 2.5 fold from 9.6% in 1995 to 25% in 2011 [3].

The rise in CS rates is becoming a major public health concern and the factors that are causing this phenomenon as well as the strategies to reduce cesarean birth are analyzed intensively [4–6]. However, in order to propose and implement effective measures to reduce CS, it is first essential to identify what groups of women are undergoing CS and investigate the underlying reasons in different settings.

Auditing of CS rates is carried out in many countries, regions, and hospitals, comparing the primary and repeated CS rate, indications for operation or CS rate in certain groups of women [7,8]. However, each of the above mentioned CS classifications have limitations. In 2001, Robson presented a new classification system, the Ten Group Classification System (TGCS) [9], which fulfill current international and local needs, allow auditing and comparing CS rates across different settings and, the most important, help to create and implement effective strategies specifically targeted to optimize CS rates [10].

In Lithuania until now indication- and urgency-based CS classifications are used. Recently, two university hospitals published one-year analysis of cesarean births using Robson TGCS and invited other institutions within the country to consider the feasibility of organizing their data according to this classification [11,12]. The objective of this study was to analyze CS birth rates using Robson TGCS and to identify the main contributors to the overall CS rate in Lithuania.

2. Materials and methods

All birth-supervising institutions in Lithuania were invited to participate in a prospective cross-sectional study, which was carried out from January 1, 2012, until December 31, 2012. The CS Working Group of Lithuanian Society of Obstetricians and Gynecologists initiated the meeting of the heads of delivery units of Lithuanian health care institutions and presented the principles of Robson TGCS on December 21, 2011. If the head of a delivery unit was not able to participate in the meeting, all information and invitation to participate in the study were sent by email and discussed by phone.

Overall 23 of the 33 hospitals with maternity wards participated in the study and their obstetric cohorts represented the study group constituting 25,373 deliveries (91.3% of all hospital births in Lithuania in 2012). The participating hospitals were divided into three groups depending on the level of health care services provided in the institution. Two hospitals (n = 7150 deliveries) were tertiary referral centers, 5 hospitals (n = 11,116 deliveries) provided health care services of II B level (high risk pregnancies and deliveries where tertiary level care is not needed, for example uncomplicated twin pregnancy, mild preeclampsia, preterm labor after 34 weeks etc.), and 16 hospitals (n = 7107 deliveries) – health care services of II A level (low risk pregnancies and deliveries).

Table 1 – Ten Group Classification System.

Group	Description
1	Nulliparous, single cephalic, ≥37 weeks, in spontaneous labor
2	Nulliparous, single cephalic, ≥37 weeks, induced or CS before labor
3	Multiparous (excluding prev. CS), single cephalic, ≥37 weeks, in spontaneous labor
4	Multiparous (excluding prev. CS), single cephalic, ≥37 weeks, induced or CS before labor
5	Previous CS, single cephalic, ≥37 weeks
6	All nulliparous breeches
7	All multiparous breeches (including previous CS)
8	All multiple pregnancies (including previous CS)
9	All abnormal lies (including previous CS)
10	All single cephalic, ≤36 weeks (including previous CS)

The obstetric concepts in the TGCS are the category of the pregnancy (singleton with cephalic, breech or other malpresentation or multiple pregnancy), the previous obstetric history (nulliparous, multiparous with or without a previous CS), the course of labor and delivery (spontaneous or induced labor or planned prelabour CS), and the gestational age (preterm or term) (9). Based on these parameters all women were assigned to one of 10 groups (Table 1).

The summary data from different institutions were sent on monthly basis by e-mail or fax to the investigators. Two investigators (D.R.R and E.B) provided continuous educational assistance not only before the study but also along the course of study (personally, by e-mail or phone calls) when difficulties to classify women arise. These efforts were made in order to avoid misclassification.

Cesarean data from each hospital were analyzed using the TGCS with reference to overall cesarean delivery rate, the size of each group, cesarean delivery rate in each individual group, and the contribution of each group to the total cesarean delivery rate. Data were processed using computer software package SPSS 15.0 for Windows. The study was approved by the Ethics Committee of Kaunas (No. BEC-MF-328).

3. Results

A total of 6697 cesarean sections were performed among 25,373 deliveries, giving an average overall CS rate of 26.4% (range 16.6%–30.7%). An average overall CS rate was highest in tertiary referral centers (30.2%), followed by hospitals providing health care services of II B (27.0%, range 18.7%–29.8%) and II A level (21.6%, range 16.6%–27.8%).

Groups 1 and 3 (women with single cephalic full-term pregnancy, with spontaneous labor without previous CS) were the largest groups representing 67.2% of all obstetric population included in this study and ranged from 54.9% in tertiary referral centers to 74.2% in II A level health care institutions