



Received: 12 August, 2021

Accepted: 20 August, 2021

Published: 23 August, 2021

*Corresponding author: Lorena Zijaj, Resident at Obstetrics-Gynecology Department, Faculty of Medicine, University of Medicine, Tirana, Albania, Tel:+355697356290; E-mail: zijaj.lorena@yahoo.com

ORCID: <https://orcid.org/0000-0003-0835-4594>

Keywords: Caesarean Section Rate; Vaginal birth; Robson Classification

<https://www.peertechzpublications.com>

Check for updates

Research Article

The analysis of Caesarean Section Rate based on 10 groups Robson's Classification

Lorena Zijaj^{1*}, Arian Shtylla², Jola Kerpaci¹ and Irida Dajti¹

¹Resident at Obstetrics- Gynecology Department, Faculty of Medicine, University of Medicine, Tirana, Albania

²Obstetric-Gynecologist Doctor at University Hospital of obstetric Gynecology "Koco Gliozheni", Tirana, Albania

Abstract

Introduction: Caesarean Section use is growing in a progressive rate globally, accounting for 21% worldwide in 2012 up from 12% in 2000. The trend in Albania follow the same pattern with the overall rate rising steadily. Specifically, in "Koco Gliozheni" Hospital the rate went up from 29.5% in 2010 to 40.35% in 2017. The World Health Organization recommends the Robson Classification as an effective caesarean analysis and monitoring too.

Objective: The aim of this article is to evaluate the cesarean section rate of University Hospital of Obstetric-Gynecology "Koco Gliozheni".

Material and method: This is a retrospective cross sectional study conducted at obstetric department of Obstetric-Gynecology University Hospital "Koco Gliozheni" in Tirana from January 2016 to May 2017. All women admitted for childbirth were categorized into relative contribution made by each group.

Results: 1918 out of 4838 births were performed by caesarean section, which corresponds to a rate of 39.6%. According to Robson classification the largest group was the group 5 (multiparous women at term, with a single cephalic presentation pregnancy) with a relative contribution of 31.6%. On second and third place were group 1 (nulliparous women, at term with a single cephalic pregnancy, during spontaneous labor) and 2 (nulliparous women at term, with single, cephalic presentation, who either had labor induced or CS before labor, especially the 2b subgroup with an elective CS) with relative contribution of 22.5% and 16.7% respectively. Groups 1;2;5 made an account of relative contribution of 76.2%. All other groups had altogether a relative contribution of 23.8%.

Conclusions: In our study, Robson Groups 5 (multiparous women at term, with a single cephalic presentation pregnancy), 1 (nulliparous women, at term with a single cephalic pregnancy, during spontaneous labor), 2 (nulliparous women at term, with single cephalic presentation, who either had labor induced or CS before labor) were identified as the main contributors to the overall CS rate at the University Hospital of Obstetric-Gynecology "Koco Gliozheni". It is important that efforts to reduce the overall CS rate should mainly be focused on the primary CS rate (group 1 and 2) and on increasing vaginal birth trail after CS (group 5).

Introduction

Caesarean Section use is growing at a progressive rate globally, accounting for 21% births world wide in 2015 from 12% in 2000 [1]. According to recommendation for proper prenatal and births care, from a Joint Conference an Appropriate Technology for Birth, organized by World Health Organization in 1985, there is no justification in any specific geographic region to have more than 10-15% Caesarean Section births [2]. This rising rate is a crucial public health problem, thus causing debatable questions due to the potential risks both maternal and perinatal. Additionally cost issues and accessibility have

promptly become concern. Statistically across the US overall CS rate was 32% in 2017 [3] compared to approximately 20% in 1996, in UK CS deliveries have increased 19.7% of birth in 2000 to 26.2% in 2015 [1]. According to Lancet in at least 15 countries the CS rate exceeds 40%, including Brazil, 55.5% Turkey [4] and Egypt 53.1% [5]. Kosovo, a country with the same ethical traits as Albanian is experiencing a swift growth in CS rate. From 2000 to 2015 the figures has increased from 7.5% to 27.3%. The trend in Albania follows the same pattern with the overall rate rising steadily. Specifically in "Koco Gliozheni" Hospital the rate went up from 29.5% in 2010 to 40.35% in 2017, as (Figure 1). In order to understand the drivers if

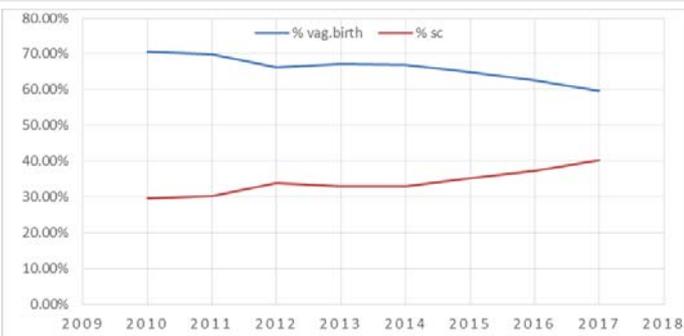


Figure 1: Trend of Caesarean Sections and vaginal births in "Koco Gliozheni" Hospital during 2010-2017.

this trend, different authors have created and proposed a consistent and standardized classification known as Robson Classification. Many countries use this randomly in their study, while other like Albania have not implanted yet. According to WHO the Robson's Classification is for "all women" who delivered at a specific setting and not only for the women who delivered by Caesarean Section: It is classification [6]. The groups of the Robson classification include variables: Parity, Previous Caesarean Section, Onset of labor, Number of foetus, Gestational age, foetal lie and presentation [7].

Objective

The main objective this paper is to report on an analysis of the CS rate in our hospital: "Koco Gliozheni" using the 10 group Robson Classification and to determine trends on time period from 2016-2017.

Materials and methods

This is a retrospective cross-sectional study at the obstetric department of the University Hospital of Obstetric and Gynecology "Koco Gliozheni" from January 2016 to May 2017. The UHCOG "Koco Gliozheni" is a tertiary University hospital supported by 24 hours obstetrics team, pediatric services, anaesthetic and neonatal department. This study includes all women who gave births to alive or still born baby of at least 28 weeks gestational age during the above mentioned time period. We have used this cut-off for definition of birth, because the threshold of viability in many low-income countries, as Albania is included as well, is birth weight ≥ 1000 g and gestational age ≥ 28 weeks. The obtain data were maternal age, parity, gestational age, onset of labor, foetus presentation, previous deliveries and previous CS. The data were categorized into 10 groups according to the Robson Classification.

System (Table 1). The groups are as below: Group 1. Nulliparous woman, single cephalic presentation in spontaneous labor. Group 2 is divide in two subgroups: 2a. Nulliparous single cephalic presentation in spontaneous labor, 2b. Nulliparous single cephalic presentation planned caesarean delivery. 3. Multiparous women without uterine scar, single, cephalic, term pregnancy in spontaneous labor. Group 4 is divide in two subgroups: 4a. Multiparous women without uterine scar, cephalic, term, pregnancy in induced labor and 4b. Multiparous women without uterine scar, cephalic term pregnancy, planned caesarean delivery. Group 5. Multiparous with scarred uterus, single, cephalic, term pregnancy. Group

6. Nulliparous single, breech pregnancy. Group 7. Multiparous single breech pregnancy (included women with scarred uterus). Group 8. All women with multiple pregnancy (include them with scarred uterus). Group 9. All women with single or oblique pregnancy (include them with scarred uterus). Group 10. All women with single cephalic preterm pregnancy (include them with scarred uterus).

Those variables needed to be analysed for our study were parity, gestational age, foetal presentation, and previous caesarean section. Statistical analysis and graphics presentation were performed using EXEL 2010 and Microsoft office programs. All missing data cases were excluded from the study.

Results

During our study period from January 2016 to May 2017, 4838 women gave birth at University Hospital of Obstetric-Gynecology "Koco Gliozheni", Tirana.

There were 2388 nulliparous (49.38%) and 2450 multiparous (50.65%). CS was performed in 1918 women resulting in an overall CS rate of (39.63%). The number of CS performed to all nulliparous and multiparous during this period of time was 1005 (52.5%) and 911 (47.5%) respectively. The rate of elective CS was 57.7% while that emergency CS was 42.3%, (Figure 2). We attempted to categorize CS according to Robson Classification and rates of each group were demonstrated separately (Table 2). The largest contributors to the overall CS rate were women with previous CS (group 5, multiparous with scarred uterus) 12.45%. CS rate within this group was 90.6% (602 out of 664 women). 456 out of 664 women (68.67%), had performed a CS prior to the onset labor (elective CS). 148 (31.33%) of women of this group, had attempted a VBAC (vaginal birth after Caesarean Section). A significant number of these multiparous, with at least one previous vaginal birth.

The second highest contributors were women included in group 1 (singletons nulliparous, cephalic presentation, at term, spontaneous onset of labor), with an overall CS rate 8.9% and with relative percentage of 22.5%.

Table 1: The ten group Robson's Classification.

1 Nulliparous; single cephalic term pregnancy; spontaneous Labour
2a Nulliparous; single cephalic term pregnancy; induced labour
2b Nulliparous; single cephalic term pregnancy; planned caesarean delivery
3 Multiparous without uterine scar; single cephalic term pregnancy; spontaneous labour
4a Multiparous without uterine scar; single cephalic term pregnancy; induced labour
4b Multiparous without uterine scar; single cephalic term pregnancy
5 Multiparous with scarred uterus; Single cephalic term pregnancy
6 Nulliparous; single breech pregnancy
7 Multiparous; single breech pregnancy (including women with scarred uterus)
8 All women with multiple pregnancy (including women with scarred uterus)
9 All women with a single oblique or transverse pregnancy (including women with scarred uterus)
10 All women with single cephalic preterm pregnancy (including women with scarred uterus)



The group 2 (nulliparous with single cephalic, full term pregnancy, included labor or pre labor CS) had the third contribution with 6.6% of overall CS rate and a relative contribution of only 16.7%. If we analysis inside the group 2 ,we find that the 2b subgroup (elective caesarean delivery) had a contribute with a 6.3% of overall CSR and with a relative contribution of 16.3%.

Discussion

Over the last decades, there has been a progressive increase in the rate of deliveries by Caesarean Section (CS) in most countries but the drivers for this trend are not completely understood [8]. Health Organization (WHO) conducted a systematic review that identified 27 different systems to classify CS. These classifications looked at “who” (woman-based), “why” (indication-based), “when” (urgency-based), as well as “where”, “how” and “by whom” a CS was performed [9]. This review concluded that women-based classifications in general, and the 10-Groups classification in particular [10], were in the best position to fulfill current international and local needs. The 10-Groups classification (also known as the “TGCS-Ten Groups Classification System” or the “Robson

Classification”) was created to prospectively identify well-defined, clinically relevant groups of women admitted for delivery and to investigate differences in CS rates within these relatively homogeneous groups of women [10]. WHO expects that the use of the Robson Classification will help health care facilities to: • Identify and analyze the groups of women which contribute most and least to overall CS rates. • Compare practice in these groups of women with other units who have more desirable results and consider changes in practice. • Assess the effectiveness of strategies or interventions targeted at optimizing the use of CS. • Assess the quality of care and of clinical management practices by analyzing outcomes by groups of women. • Assess the quality of the data collected and raise staff awareness about the importance of this data, interpretation and use [11].

Our study reports the data from low income countries like Albania. During the study from January 2016 to May 2017, gave birth 4828 women ,1918(39.63%) out of 4839 performed CS, The rate is higher than developed countries like France (31%, Australia (28%), USA (31.1%) and lower than Iran (40%), Egypt (54%), Turkey (51.9%), South America (42,9%). The main contributor to the overall CS rate were group 5,1,2 . Group 5: (multiparous with prior caesarean section ,singleton ,>37 weeks) :provides the highest contribution with 31.6% of all CS and with 90.6% CS rate of women in this group much high than Robson’s references (50–60%). On further analysis we conclude that 68.67% of women in this group had an elective CS and only 31.33% of women had attempted trail of labor after CS (TOLAC), even thought VABC had a success of 75% [12]. In some studies in low income countries , like India, success of VBAC is as low as 27.4% to 53.6% [13]. But on the other hand ,countries with high socio- economic status (France ,Netherland), reported a higher of CS from group 5(multiparous with prior caesarean section ,singleton ,>37 weeks) respectively 61% and 47% [14],

Some factors that contribute to the decreasing of percentage of VBAC are myth about CS “Once a caesarean always a caesarean”, lack of training and malpractice. Uterine

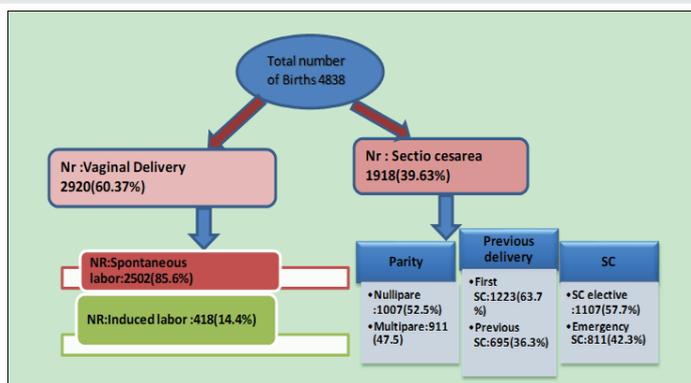


Figure 2: Distribution of Caesarean Sections and vaginal births.

Table 2: Robson report table for University Hospital Center Obsteric-Gyneocology “Koco Gliozheni”.

Group nr	Total nr of women delivered in each group(N)	Total nr of SC in each group(n)	Group size (%)	Group CSR(%)	Absolute group contribution to overall SC rate(%)	Relative contribution of the group to overall SCR (1978 SC)%
1	1507	432	30.3	28.6	8.9	22.5
2	550	321	11	58.3	6.6	16.7
3	1309	86	27	6.5	1.8	4.5
4	227	57	4.6	25	1.2	2.9
5	664	602	13.7	90.6	12.45	31.6
6	135	128	2.7	94.8	2.6	6.7
7	79	66	1.6	83.5	1.4	3.4
8	90	78	1.8	86.6	1.6	4
9	23	23	0.47	100	0.48	1.2
10	254	125	5.2	49.2	2.6	6.5
Total Number	4838	1918	100%	39.63%	39.63%	100%

Group size (%)=n of women in the group. total number N women delivered in the hospital*100

Group CS rate (%)=n of CS in the group/total N of women in group*100

Absolute contribution (%)=n of CS in group /total N of women delivered in hospital*100

Relative contribution (%)=n of CS in group/total N of CS in hospital*100

CS: (Caesaren Section)

Colour signifies the high risk group



rupture is a possible complication during vaginal birth with a scarring uterus but studies calculate the risk from 0.2% to 0.8% [15]. Group 1: (CS performed during labor) contributes with approximately 22.5% of CSR, and 28.6% within the group. Referring to Robson's finding, this group should account for no more than 10% [6].

The high rate of CS in our Hospital can be explained by the lack of infrastructure. For instance the well-being of foetus during labor has been monitored by intermittent CTG and sometimes only with foetal stethoscope.

Furthermore reasons like insufficient training of staff for CTG interpretation, lack of other foetal assessment such as foetal scalp blood sampling and cord blood PH play a crucial role. Given that, the doctor has to make a decision based only in CTG findings. There are findings similar to low incomes or developing countries as Egypt and Bosnia Herzegovina. Additionally epidural or any other anaesthesia is not a routine in our every day practice. The instrumental deliveries have reached at a critical low point, not only in "Koco Gliozheni" Hospital, but globally. Group 2: (Nulliparous women cephalic at term induced labor or elective CS) has the third high contribution, with 16.7% of overall CSR and 58.3% within the group. Robson's rate references for this group is 20–35%. After a thorough analysis, we conclude that different from references, the subgroup 2a (induced labor) is relatively smaller than 2b (elective CS). This can be explained by underreported induction of labor on patient's files. The elective section (2b), is mostly performed for nonmedically indications, the most common reason is the request of the woman as she refuses to try the vaginal birth also known as medical request, due to anxiety fear of pain, and concern of pelvic injury. If we analyze the numbers in the subgroup of elective Caesarean (2b), we conclude that the group contributes with 16.3% of overall CSR and with 54.4% within the group. So it is a considerable percentage, compares with the contribution of group 2 itself in total. Group 3–4 (multiparous women at term induced or elective CS) have a relatively low contribution, which reaches all together 7.4%. They are labelled the "low risk group". Groups 6–10 were smaller groups with an overall size of 11.77%, and with the highest group CSR that reaches up to 100% in group 9 (all women with single pregnancy with transverse or oblique lie, including women with previous uterine scar). This group is presented with an unavoidable obstetric condition (like breech presentation, multiple pregnancy abnormal fetal presentation or premature birth, several maternal obstetrical conditions) that has been served as medical indication for CS. But on the other hand the contribution to the overall CSR is lower and reaches only 32%. This is similar to the results of other studies of Balkan countries: like Bosnia and Herzegovina [16,17].

Conclusions

In our study, Robson's groups 5.1.2 were identified as the main contributors to the overall Caesarean Section rate at the

"Koco Gliozheni" University Hospital, Tirana. It is important to make effort to reduce the overall CSR (reducing CS in group 1 and 2) and increasing the attempt of vaginal birth after caesarean section. We believe that this classification can be incorporated successfully in the routine of obstetrical management and implemented in the collection of maternal and perinatal data system to improve the evaluation of Caesarean Section rate.

References

- Boerma T, Ronsmans C, Melesse D, Barros AJ, Barros FC, et al. (2018) Global epidemiology of use and disparities in caesarean sections. *Lancet* 392: 1341-1348. [Link: https://bit.ly/3j7beCA](https://bit.ly/3j7beCA)
- WHO (1985) Appropriate technology for birth. *Lancet* 2: 436-437. [Link: https://bit.ly/3Dc4zA](https://bit.ly/3Dc4zA)
- Cunningham K (2018) Williams Obstetrics. In Williams, Caesarean delivery and peripartum hysterectomy. USA 591.
- Bazelian A, Althabe F, Cafferata ML (2007) Health consequences of the increasing caesarean rates. *Epidemiology* 18: 485-486. [Link: https://bit.ly/3yaYGHZ](https://bit.ly/3yaYGHZ)
- Jadoon B, Assar TM, Nucier AAAR, Raziq HEA, Abd El-Azym Saad AS, et al. (2019) Analysis of Caesarean Section based on Robson group's classification at Behna University Hospital, Egypt. *Women Birth* 328.
- WHO (2017) Robson classification: implementation manual World Health Organization. [Link: https://bit.ly/3gpGtam](https://bit.ly/3gpGtam)
- Robson MS (2001) Classification of caesarean section. *Medicine Review* 39. <https://bit.ly/3jaqqz6>
- Betrán AP, Ye J, Moller AB, Zhang J, Gülmezoglu AM, et al. (2016) The increasing trend in caesarean section rates: regional and national estimates: 1990-2014. *PLoS One* 11: e0148343. [Link: https://bit.ly/3B6KurU](https://bit.ly/3B6KurU)
- Torloni MR, Betran AP, Souza JP, Betran AP, Souza JP, et al. (2011) Classifications for caesarean section: a systematic review. *Plos One* 6: e1456. [Link: https://bit.ly/3B29H71](https://bit.ly/3B29H71)
- Robson MS (2001) Classification of caesarean sections. *Fetal and Maternal Medicine Review* 12: 23-39. [Link: https://bit.ly/3kffsrg](https://bit.ly/3kffsrg)
- [Link: https://bit.ly/3859x2j](https://bit.ly/3859x2j)
- Williams (2018) Delivery after Caesarean section. In William, *Obstetrics*. USA 591.
- Agrawal A, Chowdhary P, Das V, Srivastava A, Pandey A, et al. (2007) Evaluation of pregnant women with scarred uterus in a low resource country. *Journal of Obstetric Gynaecology Research* 651.
- ACOG (2010) Vaginal birth after caesarean delivery. *Acog Practice Bulletin* 116.
- Zhang J, Geerts C, Hukkelhoven C, Offerhaus P, Zwart J, et al. (2016) A caesarean section in subgroups of women and perinatal outcomes. *BJOG* 123: 754-761. [Link: https://bit.ly/3j6rSCR](https://bit.ly/3j6rSCR)
- Jasenko I (2016) Caesarean rate Analysis in University hospital Tuzla -according to Robson's classification.
- Chinnock M, Robson S (2007) Obstetric trainees' experience in vaginal breech delivery: implications for future practice. *Obstet Gynecol* 110: 900-903. [Link: https://bit.ly/3y7Ngvh](https://bit.ly/3y7Ngvh)