

## Correlation between Births by Caesarean Section and Uterine Rupture



### Healthcare

**Keywords:** caesarean section, uterine rupture, Kosovo.

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### Abstract

**Context and Objective:** Continued increases in the number of births by caesarean section in many countries of the world, have influenced at increased the number of uterine rupture. The purpose of this paper is to determine the correlation between births by caesarean section and uterine rupture. **Design and Setting:** Cross-sectional study. Designed as a pre-defined protocol and a search was conducted by non-electronic databases (with the written-protocol of the births) of Obstetrics and Gynaecology Clinic/University Clinical Centre of Kosovo. **Methods:** Data for uterine rupture were collected for five years (from 2010 to 2014), only in women who gave birth by caesarean section. The cases with uterine rupture have divided over the years, as has happened rupture, then are made statistical calculations. **Results:** Of the twenty-two cases reported with uterine rupture during five years at the Department of Obstetrics and Gynaecology, were counted in all cases (100 per cent). They were twenty-two cases of uterine rupture by the total 15526 women that have born by Caesarean Section during five years. Calculation of incidence has come out that is 14 per 10,000 deliveries with Caesarean Section and significance level for observed proportion was  $P < 0.0001$  (95% confidence interval CI; 21.35 to 22.66). From 2010 to 2014, have a continuous increase of uterine rupture, if we make a comparison the percentage of uterine rupture of 2010, with a percentage of 2014, have a significant difference (in favor of the increase); 0.07 % versus 0.17%, odds ratio  $OR = 0.82$  (95% CI; 0.016 to 41.70). **Conclusions:** We conclude that as much as increases number of the births with caesarean delivery, will increase the cases with uterine rupture. The incidence rates of the uterine rupture in Kosovo are 14 per 10,000 deliveries with Caesarean Section (as estimated by this study five old; 2010 to 2014).

## 1. Introduction

Uterine rupture is separation of uterine muscle, requiring urgent operative intervention. Separation involves all layers of the uterus. Uterine rupture is most often seen in women that have a scarred uterus (usually an east earlier with caesarean section). Uterine rupture causes fetal distress and maternal shock. The risk for women who labor with a scarred uterus is 35 per 10,000 deliveries. The risk is further increased by test for vaginal delivery and use of Oxytocin and prostaglandins for induction. Continued increases in the number of births by caesarean section in many countries of the world, have influenced at increased the number of uterine rupture. To measure this correlation between births by cesarean section and uterine rupture, we made a research five years (from 2010 to 2014), in Obstetrics and Gynecology Clinic, University Clinical Center of Kosovo. The aims of study initially were to estimate the incidence of uterine rupture in the Kosovo and then to determine the correlation between births by cesarean section and uterine rupture.

## 2. Objective

To determine the correlation between births by cesarean section and uterine rupture

## 3. Methods

### 3.1 Design

### 3.2 This is a cross-sectional study.

Designed as a pre-defined protocol and a search was conducted by non-electronic databases (with the written - protocol of the births) of Obstetrics and Gynaecology Clinic/University Clinical Centre of Kosovo. The study population includes women hospitalized only in the Obstetrics and Gynecology Clinic, University Clinical Centre of Kosovo. Data for uterine rupture were collected for five years (from 2010 to 2014), only in women who gave birth by caesarean section. The cases with uterine rupture have divided over the years, as has happened rupture, then are made statistical calculations. Data were calculated using MedCalc software.

Statistical methods that were used to issue final results are; Percentages (report;  $22/15526 \times 100$ ). Incidence rate; calculate incidence rates of the disease based on total number of new cases of specific diseases and total population at risk 'xn<sup>5</sup>'. Correlation Coefficient: Pearson Correlation Coefficient Calculator, while P-value from Pearson (R) Calculator. Odds Ratio (OR); the (OR), its standard error and 95% confidence interval (CI) are calculated according to Altman, 1991.

### 3.3 Case determination

The cases were all women from Kosovo who were born in Obstetrics and Gynaecology Clinic during these five years (2010 to 2014) and are identified as having a uterine rupture defined as a complete separation of the wall of the pregnant uterus, with or without expulsion of the foetus, involving rupture of membranes at the site of the uterine rupture or the extension of the complete separation of the wall of the uterus into uterine muscle separate from any previous scar, and endangering the life of the mother or foetus.

### 3.4 Ethics statement

The study was approved by the Obstetrician and Gynecologists Committee in accordance with the ethical criteria concerning experiments involving human beings.

## 4. Results

From 22 (in total) of reported cases of uterine rupture during five years in Department Obstetrics and Gynaecology Clinic / University Clinical Centre of Kosovo, were counted in all cases (100%), (**Table 1**).

**Table 1.** Number of cases with a uterine rupture and number of births with Caesarean Section during five years (from 2010 to 2014) and their percentages.

Years	2010	2011	2012	2013	2014	Total
Number of cases with a uterine rupture	2	4	5	5	6	22
Number of births with Caesarean Section	2856	2942	3100	3181	3447	15526
Percentages	0.07 %	0.13 %	0.16%	0.16 %	0.17%	0.14 %

They were 22 cases of uterine rupture, by the total 15526 women that have born by Caesarean Section during five years, calculation of incidence has come out that is 14 per 10,000 deliveries with Caesarean Section and significance level for observed proportion was  $P < 0.0001$  (95% (CI); 21.35 to 22.66). From 2010 to 2014, have a continuous increase of uterine rupture (see table 1), if we make a comparison the percentage of uterine rupture of 2010, with a percentage of 2014, have a significant difference (in favour of the increase); 0.07 % versus 0.17 %, (OR) = 0.82 (95% (CI): 0.016 to 41.70). Where means that birth by caesarean section has a major role in the risk for uterine rupture. The average age of women with a uterine rupture was 26.59 old. (Standard deviation (SD)= 6.02) By place of residence (town or village); 63.63 percent (n=14), were women from village and 36.37 percent (n=8), were women from town. (OR) = 1.7 (95% CI; 0.61 to 5.00). This mean the women from the village have possibility 1.7 times more of the make a uterine rupture, than women from town.

**Table 2.** Number of cases with a uterine rupture by place of residence

Place of residence	Number of cases	Percentages
Town	8	36.37%
Village	14	63.63%
Total	22	100%

This constant growth of uterine rupture is attributed to the increased number of births by caesarean section. To evaluate this, we have made measurement of correlation between births by caesarean section and uterine rupture.

Two variables were calculated (X=number of births by caesarean section and Y=Number of cases with a uterine rupture), and result in a strong correlation ( $r=0.8983$ ), the P-value is  $< 0.00001$ . The result is significant at  $P < 0.05$ . (See below).

You entered the following data:

X= 2856 2942 3100 3181 3447  
 Y= 2 4 5 5 6

The correlation coefficient is:  $r = 0.8983$

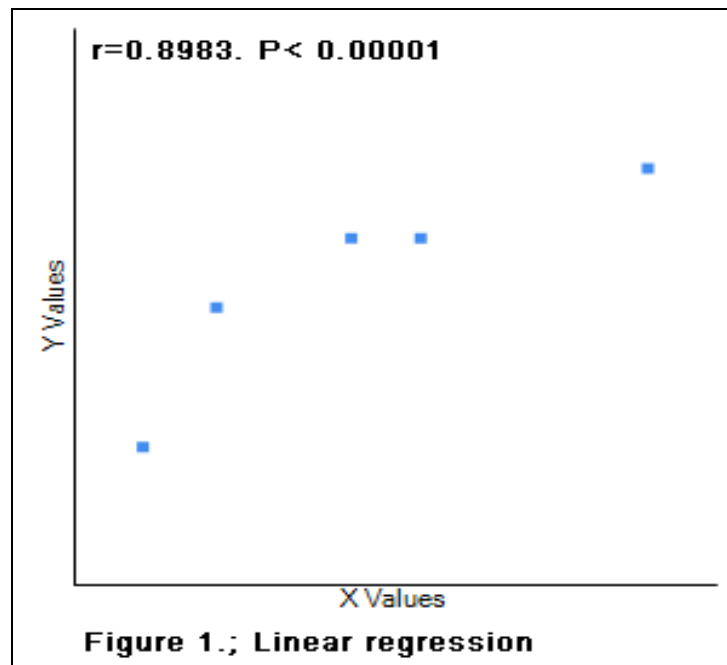


Figure 1. Linear regression

## 5. Discussion

The incidence of complete uterine rupture in Kosovo is 14 per 10,000 deliveries with caesarean section (as estimated by this study five old; 2010 to 2014). The incidence estimate demonstrates for uterine rupture rates in Kosovo is approximately the same as in many other countries of the world. A study shows that previous caesarean section, it was the main risk factor for uterine rupture<sup>1</sup>, our study shows that the incidence rates of the uterine rupture in Kosovo were 14 per 10,000 deliveries, and all the women had one of the earliest birth by caesarean section. Our study found a strong correlation ( $r=0.8983$ ) between of uterine rupture and a number of the births with caesarean delivery. We conclude that as much as increases number of the births with caesarean delivery, will increase the cases with uterine rupture. This result helps us practical clinical daily that to you recommended method of delivery and the time of hospitalization in clinical, women with a previous caesarean section delivery. An edition in 2005 by the World Health Organization (WHO) reported an overall median incidence of uterine rupture of 5.3 per 10,000 deliveries (based on eight studies).<sup>1</sup> While a study in the Netherlands, reported an overall incidence of uterine rupture of 5.9 per 10,000 deliveries ( $P<0.0001$ ).<sup>2</sup> A study in

Australia conducted by retrospective database, shows the incidence of uterine rupture in women with a former caesarean section delivery was 13 per 10,000 deliveries<sup>3</sup>, approximately similar to Kosovo.

A National Case Control Study in UK reported the incidence of uterine rupture that was 21 per 10,000 deliveries, in women with a former caesarean section, which have proved vaginal delivery.<sup>4</sup> Even a retrospective study in Norway, shows a higher incidence of uterine rupture in women with a former caesarean section, 50 per 10,000 deliveries.<sup>5</sup> The incidence rates for 90 per 10,000 deliveries, was for women with a former caesarean section, which have proved vaginal delivery, is reported by a study in Sweden.<sup>6</sup>

## 6. Conclusions

We conclude that as much as increases number of the births with caesarean delivery, will increase the cases with uterine rupture. In this study, we found a strong correlation between of uterine rupture and a number of the births with caesarean section. The incidence rate of the uterine rupture in Kosovo is 14 per 10,000 deliveries with Caesarean Section.

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