CEOG Clinical and Experimental Obstetrics & Gynecology

Original Research

Cesarean section: Where are we are now? A comparative study between 1997-1998 and 2015-2016 at a tertiary teaching hospital in a developing country

A. Basha[1], Z. Falayleh[1], R. Jabra[1], S. Attili[1], Y. Obeidat[2], L. El-Khatib[2], A. Ala'eddien Obeidat[3]

[1]Department of Obstetrics and Gynecology, Jordan University Hospital, The University of Jordan, Amman
[2]Faculty of medicine, The Hashemite University of Jordan, Amman
[3]Modern Montessori School, Amman (Jordan)

Summary

Purpose: The continued rise in caesarean section deliveries (CS) raises a major public health concern worldwide; our aim is to evaluate trends and determinants this increase, comparing indications between 1997 and 1998 (group A) and 2015 and 2016 (group B). *Materials and Methods:* A retrospective study was conducted at Jordan University Hospital analyzing all indications of CSs. Each delivery was assigned to the primary indication noted for that pregnancy. *Results:* The CS rate gradually rose from 22% in group A to 62%, and to 65% in group B. The leading indications for the increase rate of CS across the years were previous ≥ 2 CS, followed by decreasing rate of trial of previous uterine scar, non-reassuring fetal heart pattern, breech presentation, twin pregnancies, obstructed labor, and placenta previa. *Conclusion:* CS rates increased over the last 20 years. The appropriate way is to deal with this trend, is to reduce the primary section.

Key words: Cesarean section; Developing country; Pregnancy.

Introduction

Cesarean section deliveries (CSs) are the most frequent performed major operation in obstetrics [1]. Although CS can be life-saving for the mother and/or baby when used judiciously, it also carries risks for higher rates of maternal morbidity, mortality, and delayed recovery from the birth, difficulty establishing breastfeeding, neonatal morbidity, and admission to nursery care, in addition to the increase costs for the health system [2]. Pregnancies following CS also have increased risks for other types of abnormal placentation, reduced fetal growth, preterm birth, and possibly stillbirth [3]. Chronic maternal morbidities associated with CS include pelvic pain and adhesions, also adverse reproductive effects which may include decreased fertility and increased risk of spontaneous abortion and ectopic pregnancy. The WHO has considered a population-based rate of CS between 10-15%, as an ideal rate that was associated with a notable decline in maternal mortality ratio and neonatal mortality rate [4]. However the rate of CS has been increasing both in developed and developing countries in the past decade [1]. In this study, the purpose is to explore the different indication and trends that increase the CS rate in a teaching tertiary hospital comparing 1997 and 1998 (group A) and 2015 and 2016 (group B).

Materials and Methods

A retrospective study was conducted based on data collected from delivery's register and medical records for all CS in 1997, 1998 (group A) and 2015, 2016 (group B) at Jordan University Hospital. Demographic data, CS's indications, and medical history were collected.

The indications for CS's were based on the primary indication as stated by the attending obstetrician. Each delivery was assigned to the primary indication noted for that pregnancy, regardless of other reported indications. All CSs were allocated to one of main categories:, previous ≥ two CS, previous one CS, non reassuring fetal heart pattern (NFHRP), breech presentation and other malpresentation, labor dystocia, twin gestation and other multiple gestations, placentas previa, and accreta, maternal request, advanced maternal age (AMA), failed induction of labor (IOL), infertility and in vitro-fertilization (IVF), suspected macrosomia, small for gestational age (SGA), recurrent miscarriages, placental abruption, cephalopelvic disproportion (CPD), failed instrumental delivery, congenital fetal anomalies, chorioamnionitis, meconium stained liquor, and "others".

The category of labor dystocia includes all types of obstructed or lack of progressive cervical dilation or lack of descent of the fetal head, or both. NRFHRP is defined as severe variable decelerations, late decelerations, prolonged decelerations (three to ten minutes), baseline bradycardia of < 100 beats/minute or base line tachycardia > 160 beats/minute. Other multiple gestations include triplets and quadruplets. The category malpresentation includes all types of malpresentations except cord and breech presentations, which were regarded as a separate category since 2001; a policy of planned CS for term breech presentation was introduced

Revised manuscript accepted for publication November 7, 2018

Clin. Exp. Obstet. Gynecol. - ISSN: 0390-6663
XLVI, n. 6, 2019
doi: 10.12891/ceog4979.2019

7847050 Canada Inc.
www.irog.net

Published:10 December 2019

Table 1. — *Summary of the distribution of indications and rates of CS in groups A and B.*

Indication	Group A (n=4,757)		Group B (n=5,895)		*p*-value
	Total number	%	Total number	%	
Previous ≥ two CS	226	5.00	1187	20	0.000
Previous one CS	79	1.70	832	14	0.000
NRFHP[1]	251	5.50	441	7.5	0.000
Breech presentation	118	2.60	341	5.8	0.000
Twin pregnancy	47	1.00	184	3.1	0.000
Dystocia	62	1.40	152	2.6	0.000
Placenta previa	49	1.10	99	1.7	0.009
Recurrent miscarriages	10	0.22	75	1.3	0.000
IVF[2]	2	0.04	48	0.8	0.000
Maternal request	0	0.00	40	0.68	0,000
Failed IOL[3]	8	0.17	29	0.5	0.007
AMA[4]	3	0.07	24	0.41	0.000
Infertility	1	0.02	14	0.24	0.004
Suspected macrosomia	2	0.04	22	0.40	0.000
SGA[5]	2	0.04	19	0.30	0.000
Failed instrumental delivery	9	0.20	7	0.12	0.445
PIH[6]	22	0.48	37	0.63	0.320
Placental abruption	15	0.33	21	0.36	0.806
Triplets	5	0.11	14	0.24	0.191
Congenital fetal anomaly	7	0.15	7	0.12	0.634
Cord prolapsed and presentation	23	0.50	29	0.49	0.404
Mal presentation (mal lie + mal presentation)	55	1.16	69	1.17	0.946
CPD[7]	1	0.02	9	0.15	0.060
Meconium stained liquor	4	0.09	4	0.07	0.985
Chorioamnionitis	1	0.02	6	0.10	0.231
Scarred uterus	4	0.09	2	0.03	0.468
Genital warts	0	0.00	5	0.08	0.113
Vaginal repair	1	0.02	3	0.05	0.825
Quadruplets	1	0.02	0	0.00	0.893
Others	1	0.02	8	0.14	0.080

[1]NRFHP: non reassuring fetal heart pattern. [2]IVF: in vitro –fertilization.[3] IOL: induction of labor. [4]AMA: advanced maternal age. [5]SGA: small for gestational age. [6]PIH: pregnancy induced hypertension.[7]CPD: cephalo-pelvic disproportion.

in the present department in accordance with recommendations of the Term Breech Trial Collaborative Group study [5]. Cord prolapsed and cord presentation were a separate group. AMA is when the mother is ≥ 35 year of age. Suspected macrosomia is when the estimated fetal weight (EFW) before delivery is ≥ 4,000 grams and SGA when the EFW is less than the 10% for the gestational age. Recurrent miscarriage is when the mother has ≥ two recurrent miscarriages and is on low molecular weight heparin in the indexed pregnancy. Infertility is when the women has primary or secondary infertility and had spontaneous pregnancy or got pregnant by induction of ovulation without IVF. All women with prelabor diagnosis of placenta previa regardless the type, were scheduled for a CS. All women with ≥ two CS were scheduled for elective surgery. Pregnancy induced hypertension (PIH) is when the mother blood pressure ≥ 140/90 at the time for decision of CS.

The study was approved by the Ethics Committee for Medical Research at the Jordan University Hospital and the University of Jordan. Data were analyzed using SPSS 20. Frequency and percentage were calculated for the categorical data and Pearson's chi-squared test. Fisher exact test was used when the cell is less than 5.0. Significance was set at $p < 0.05$.

Results

In a total of 4,575 deliveries in group A and 5,895 in group B, 1,010 (22%) delivered by CS in group A compared to 1,907 (62%) and 1,835 (65%) in 2015 and 2016 in group B, respectively.

The leading indications for the increase rate of CS's across the years were previous ≥ two CS. It increased from 5% (226/4,575) to 20 % (1,187/5,895), followed by decreasing rate of trial of previous uterine scar, the rate increased from 1.7% (79/4,575) up to 14% (832/5,895), NRFHP was 5.5 % (251/4,575) which increased to 7.5% (441/5,895), breech presentation was 2.6% (118/4575) which increased to 5.8% (341/5,895), twin pregnancies CS's increased from 1% (47/4,575) to 3.1% (184/5,895), and dystocia was diagnosed in 1.4% (62/4575) compared to 2.6% (152/5,895); all with ($p = 0.000$), and placenta previa increased from 1.1% (49/4,757) to 1.7% (99/5,895) ($p = 0.009$) (Table 1).

Other indications were noted to increase across the years. Maternal request was not found in group A, however, there were 0.68% (40/5,895) women in group B, AMA increased

Table 2. — *Breech deliveries during the study period.*

Breech deliveries	VD		CS		Total	
Group A	40	25%	118	75%	158	31%
Group B	7	2%	341	98%	349	69%
Total	47	9.3%	459	98.7%	507	100%

Table 3. — *Twin deliveries during the study period.*

Twin deliveries	VD		CS		Total	
Group A	67	59%	47	41%	114	36.5%
Group B	14	7%	184	93%	198	64.5%
Total	81	26%	231	74%	312	100%

from 0.07% (3/4575) compared to 0.41% (24/5,895), both with p = 0.000. Failed IOL was diagnosed in 0.17% (8/4,575) and 0.5% (29/5,895), with (p = 0.007). Infertility and IVF were causes for primary CS in the present study; 0.04% women (2/4,757) who had IVF underwent CS in group A, however after the increased use of IVF techniques, the rate of CS increased to 0.8% (48/5,895) in group B with (p = 0.000). Also, the rate of CS due to infertility increased from 0.02% (one woman) to 0.24% (14 women) with (p = 0.004). Mothers with suspected macrosomia was another indication for the increase of primary CS; the rate increased from 0.04% (two women) to 0.4% (22 women). The rate for fetuses who were SGA increased from 0.04% (two women) to 0.3% (19 women), and the rate of CS in women with recurrent miscarriages increased from 0.22% (ten women) to 1.3% (75 women); all with p = 0.000 (Table 1).

Discussion

Whether or not to perform a cesarean section is based primarily on the question of what is best for or may save the lives of the mother and child [6]. The rate of CS worldwide is 18.6% (1.4%–56.4%), however it varies across different countries, worldwide: in Africa it is 7.3% (1.4%–51.8%), in Asia 19.2% (1.7%–47.5%), in Europe 25.0% (13.9%–38.1%), in Latin America and the Caribbean 40.5% (5.5%–55.6%), in Northern America 32.3% (27.1% –32.8%), and in Oceania 31.1% (6.2%–33.4%) [7].

In previous studies in Jordan, the CS rate increased consistently, from 8.5% in 1990 to 12.9% in 1997, to 17.8% in 2002 [8] and continues to increase from 18.2% in 2002 in another study to 30.3% in 2012, with the most common reason for CS being "absence of a clear indication" [9].

In the present study the overall CS rate increased from 22% (group A) to 62% and 65% (2015 and 2016) in group B which is high (Table 1).

The leading cause for the present increase CS rate was ≥ two CS, as CS is an obligatory indication after two previous CS. [10]. The rate for ≥ two CS increased from 5% (226 women) to 20% (1,187 women) with p = 0.000, which is alarming and requires more attention.

The second cause for the increase rate of CS in the present study was a previous CS. This incidence is steadily rising worldwide [11], as the attempts of vaginal birth after CS is decreasing because of the increased risk of uterine rupture, repeat cesarean section, and greater association with perinatal risk than with elective repeated cesarean [12]. The trial of vaginal birth after CS at our hospital decreased; therefore the rate of CS increased from 1.7% (79 women) to 14% (832 women) with p = 0.000. Therefore it is important to carefully scrutinize the indication of primary CSs [11].

It is stated that NRFHRP is one of the leading primary indication for CS worldwide, and is the third cause in the present study; unfortunately, fetal distress is often over-diagnosed [13]. The rate of CS due to NRFHRP increased from 5.5 % (251 women) to 7.5 % (441 women) with p = 0.000), indicated that if fetal scalp pH was performed and the results were within the normal range, a CS could be avoided [14].

Breech presentation was the fourth cause in the present list for the increase of the CS rate in this hospital. Since an elective safe CS for breech presentation is much easier to execute and it requires less expertise and experience, as stated in some studies [5, 15], therefore as a consequence, almost all breech presenting babies are being delivered by CS. The present breech CS rate increased dramatically from 2.6% (118 women) to 5.8% (341 women) with p = 0.000. Using another calculation method, the present vaginal breech deliveries was 25% from the total breech fetuses in group A which decreased to 2% in group B (Table 2).

The incidence of twin, triplet, and higher-order multifetal gestations, has increased dramatically in recent years. Rates of CSs for multiple gestations also have increased, largely due to the perception that this will improve neonatal outcomes [16]. Although the Twin Birth Study found that planned vaginal lower segment CS is not advantageous to the fetuses [17], and there is insufficient evidence to support the routine use of planned CS for term twin pregnancy with leading cephalic presentation [18]. In spite of this, the rate of twin CS increased from 1% (47 women) to 3.1% (184 women) in the hospital with p = 0.000. Using another calculation method, the present twin vaginal deliveries decreased from 59% (67/114) women to 7% (14/198) women (Table 3).

Dystocia is another leading cause for primary CS in the United States, as it is rarely diagnosed with certainty [19], and also in this study. Dystocia was diagnosed in 1.4% (62 women) in group A, compared to 2.6% (152 women) in group B with p = 0.000, which indicates the need to be more patient and to use active management of the first stage of labor, with strict diagnosis of onset of labor [20].

With time there are higher incidences of more cases of placenta previa and accreta, as it is known fact that the risk of placenta previa increases with the number of previous CSs [21] Hence the rate of placenta previa increased from

1.1% (49 women) to 1.7% (99) women with $p = 0.009$. There was no single case of placenta accreta in group A, however in Group B there were four cesarean hysterectomies due to placenta accreta, and if cesarean rates continue to increase, the annual incidence of placenta previa, placenta accreta, and maternal death will also substantially increase [22].

CS was high in women with recurrent miscarriage in one study [23] and this was noted here as a cause for the increase rates of primary CS. In group A 0.22% (ten women) had CS compared to 1.3% (75 women) in group B ($p = 0.000$).

Infertility and IVF are causes for primary CS and the rates appear to be disproportionately high in term singleton births [24] and multiple gestations [25]. In group A, only 0.04% (two women) who had IVF underwent CS; however after the increase use of IVF in our country, the rate of CS in group B increased to 0.8% (48 women), with $p = 0.000$.The rate of CS due to infertility also increased from 0.02% (one woman) in group A to 0.24% (14 women) in group B with ($p = 0.004$).

In consistent with other parts of the world, new indications were introduced as maternal request for CS without any medical indication [26]. Although it is known that this carries the potential risks for a longer maternal hospital stay, an increased risk of respiratory problems for the infant and greater complications in subsequent pregnancies [27]. In group B, 0.68% (40 women) had CS, where there were not any in group A.

Compared to spontaneous onset of delivery, IOL is associated with an increased risk of emergency CS both among nulliparous and multiparous women [28] The rate of CS due to failed IOL rose from 0.17% (eight women) to 0.5% (29 women), with $p = 0.007$. AMA is noted in some studies to increase the risk for CSs both for nulliparasand multiparas [29]. In spite of the increase incidence of comorbidities and pregnancy-related complications [30], there were three (0.07%) women who had CS in group A compared to 24 (0.41%) in group B with $p = 0.000$. Delivery of macrosomic fetuses is not always associated with perinatal complications, however attempts to eliminate these complications lead to an increase in the number of CS and labor inductions, in spite of the knowledge that clinical and ultrasonographic examination cannot exclude or confirm the possibility of macrosomia with sufficient specificity and sensitivity [31]. Mothers with suspected fetal macrosomia were scheduled for primary CS, therefore the rate increased from 0.04 % (two women) to 0.4% (22 women) with $p = 0.0003$.

In the absence of other obstetric indications requiring CS, there is no sufficient evidence to recommend planned CS in the pregnancy with SGA aiming to reduce neonatal and perinatal morbidity and mortality [32]. However the present CS rate increased from 0.04% (two women) to 0.3% (19 women) with $p = 0.000$.

Other indications for CSs were not significant in the present study throughout the years, as failed instrumental delivery, PIH, placental abruption, triplets and quadruplets, congenital fetal anomaly, malpresentations, CPD, chorioamniontis, and meconium stained liquor.

The present rate is high and could be partially explain ed by the fact that the pregnant women attending the hospital are mainly from the middle class, those who are employed, those that do not desire to have many children, those who had primary CS in the private sector for an unconvincing indication, and those do not want to undergo a vaginal delivery. Nevertheless, although the principle contributor is previous ≥ two CS, we feel that in order to lower the total CS rate; the appropriate way would be through reducing the primary section by increasing attempts of vaginal birth after CS, tightening the criteria for NRFHRP (and liberal use of scalp pH), encouraging external cephalic version for breech presentation, maintaining operative vaginal breech delivery skills, vaginal delivery for twin gestations when the first twin is in cephalic presentation, and applying more strict criteria for intervention for labor dystocia. However proper counseling for women who asked for CS without any medical reasons and for those who were above 35 years of age to alleviate their fears, proper management for multiparous women in labor, labor induction at complete 41 weeks' gestation, judicious decisions for route of delivery in women with infertility, proper fetal weight estimation with careful review of the previous obstetrical history in women with suspected macrosomia, strict intrapartum fetal monitoring for SGA in labor, and proper management of women with recurrent miscarriage, will all assist to reduce the rate of primary CS and hence the overall rate of the CS. The study has few limitations, since it is a retrospective study, some confounders could not be excluded as a possible explanation for the findings.

Conclusion

CS rates have steadily and dramatically increased over the last 20 years of study. The appropriate way to deal with this global burden is to reduce the primary section. Clinicians and women need to be aware of the long-term risks associated with CS when determining the method of delivery for first and subsequent births.

References

[1] Khan A., Ghani T., Rahim A., Rahman M.M.: "Changing trends in incidence and indications of caesarean section". *Mymensingh Med. J.*, 2014, *23*, 52.

[2] Davey M.A., King J.: "Caesarean section following induction of labour in uncomplicated first births- a population-based cross-sectional analysis of 42,950 births". *BMC Pregnancy Childbirth*, 2016,

16, 92.

[3] Clark E.A., Silver R.M.: "Long-term maternal morbidity associated with repeat cesarean delivery". *Am. J. Obstet. Gynecol.*, 2011, *205*, S2.

[4] Betran A.P., Torloni M.R., Zhang J.J., Gülmezoglu A.M., WHO Working Group on Caesarean Section: "WHO Statement on Caesarean Section Rates". *BJOG*, 2016, *123*, 667.

[5] Hannah M.E., Hannah W.J., Hewson S.A., Hodnett E.D., Saigal S., Willan A.R.: "Plannedcaesarean section versus planned vaginal birth for breech presentation at term: arandomised multicentre trial". Term Breech Trial Collaborative Group". *Lancet*, 2000, *356*, 1375.

[6] Mylonas I., Friese K.: "Indications for and Risks of Elective Cesarean Section". *Dtsch. Arztebl. Int.*, 2015, *20*, 489.

[7] Betrán A.P., Ye J., Moller A.B., Zhang J., Gülmezoglu A.M., Torloni M.R.: "The IncreasingTrend in Caesarean Section Rates: Global, Regional and National Estimates:1990-2014". *PLoS One*, 2016, *11*, e0148343.

[8] Khawaja M., Al-Nsour M.: "Trends in the prevalence and determinants of caesareansection delivery in Jordan: evidence from three demographic and health surveys,1990—2002". *World Health Popul.*, 2007, *9*, 17.

[9] Al Rifai R.: "Rising cesarean deliveries among apparently low-risk mothers atuniversity teaching hospitals in Jordan: analysis of population survey data,2002-2012". *Glob. Health Sci. Pract.*, 2014, *13*, 195.

[10] Walfisch A.: "Vaginal birth after Cesarean delivery". *In:* Sheiner E., (ed). *Cesarean section: procedures, complications and recovery*. New York: Nova Science Publishers Inc., 2012, 251.

[11] Biswas A., Su L.L., Mattar C.: "Caesarean section for preterm birth and, breechpresentation and twin pregnancies". *Best Pract. Res. Clin. Obstet. Gynaecol.*, 2013, *27*, 209.

[12] Rossi A.C., Prefumo F.: "Pregnancy outcomes of induced labor in women withprevious cesarean section: a systematic review and meta-analysis". *Arch. Gynecol. Obstet.*, 2015, *291*, 273.

[13] Comparetto C., Borruto F.: "Indications for cesarean sections". *In:* Sheiner E., (ed.) *Cesarean section: procedures, complications and recovery.* New York: Nova Science Publishers Inc., 2012, 39.

[14] Reif P., Haas J., Schöll W., Lang U.: "Foetal scalp blood sampling: impact on the incidence of Caesarean section and assisted vaginal deliveries for non-reassuringfoetal heart rate and its use according to gestational age". *Z. Geburtshilfe. Neonatol.*, 2011, *215*, 194.

[15] Glezerman M.: "Five years to the term breech trial: the rise and fall of arandomized controlled trial". *Am. J. Obstet. Gynecol.*, 2006, *194*, 20.

[16] Monson M., Silver R.M.: "Multifetal Gestation: Mode of Delivery". *Clin. Obstet. Gynecol.*, 2015, *58*, 690.

[17] Barrett J.F., Hannah M.E., Hutton E.K., Willan A.R., Allen A.C., Armson B.A., *et al.*: "Twin Birth Study Collaborative Group. A randomized trial of planned cesarean or vaginal deliveryfor twin pregnancy". *N. Engl. J. Med.*, 2013, *3*, 1295.

[18] Hofmeyr G.J., Barrett J.F., Crowther C.A.: "Planned caesarean section for women with a twin pregnancy". *Cochrane Database Syst. Rev.*, 2015, *19*, CD006553.

[19] Ressel G.W., American College of Obstetricians and Gynecologists: "ACOG releases report on dystocia and augmentation of labor". *Am. Fam. Physician*, 2004, *69*, 1290.

[20] Wei S., Wo B.L., Qi H.P., Xu H., Luo Z.C., Roy C., *et al.*: "Early amniotomy and earlyoxytocin for prevention of, or therapy for, delay in first stage spontaneouslabour compared with routine care". *Cochrane Database Syst. Rev.*, 2012, *12*, CD006794.

[21] Rowe T.: "Placenta previa". *J. Obstet. Gynaecol. Can.*, 2014, *36*, 667.

[22] Solheim K.N., Esakoff T.F., Little S.E., Cheng Y.W., Sparks T.N, Caughey A.B.: "The effect of cesarean delivery rates on the future incidence of placenta previa, placentaaccreta, and maternal mortality". *J. Matern. Fetal Neonatal Med.*, 2011, *24*, 1341.

[23] Jivraj S., Anstie B., Cheong Y.C., Fairlie F.M., Laird S.M., Li T.C.: "Obstetric andneonatal outcome in women with a history of recurrent miscarriage: a cohortstudy". *Hum. Reprod.*, 2001, *16*, 102.

[24] Sullivan E.A., Chapman M.G., Wang Y.A., Adamson G.D.: "Population-based study ofcesarean section after in vitro fertilization in Australia". *Birth*, 2010, *37*, 184.

[25] Tan J.K., Tan E.L., Kanagalingam D., Yu S.L., Tan L.K.: "Multiple pregnancy is theleading contributor to cesarean sections in in vitro fertilization pregnancies: An analysis using the Robson 10-group classification system". *J. Obstet. Gynaecol. Res.*, 2016, *42*, 1141.

[26] Wagner M. "Choosing caesarean section". Lancet. 2000, 11, 1677.

[27] American College of Obstetricians and Gynecologists. "ACOG committee opinionno. 559: Cesarean delivery on maternal request". *Obstet. Gynecol.*, 2013, *121*, 904.

[28] Thorsell M, Lyrenäs S, Andolf E, Kaijser M. "Induction of labor and the riskfor emergency cesarean section in nulliparous and multiparous women. Acta Obstet Gynecol Scand. 2011, 90, 1094.

[29] Bayrampour H, Heaman M. "Advanced maternal age and the risk of cesarean birth: a systematic review". *Birth*, 2010, *37*, 219.

[30] Bereczky L.K., Kiss S.L., Szabó B.: "Increased frequency of gestational anddelivery-related complications in women of 35 years of age and above". *J. Obstet. Gynaecol.*, 2015, *35*, 115.

[31] Piasek G., Starzewski J., Chil A., Wrona-Cyranowska A., Gutowski J., Anisiewicz A., *et al.*: "Analysis of labour andperinatal complications in case of foetus weight over 4000 g". *Wiad. Lek.*, 2006, *59*, 326.

[32] Simões R., Bernardo W.M., Salomão A.J., Baracat E.C.: "Cesarean delivery and small newborn for gestational age". *Rev. Assoc. Med. Bras.*, 2016, *62*, 16.

Corresponding Author:
ASMA BASHA, M.D.
Department of Obstetrics and Gynecology
The University of Jordan
PO Box: 17114
11195. Amman (Jordan)
e-mail: bashaasma@yahoo.com