INCIDENCE OF CAESAREAN SECTION IN FEMALE DOCTOERS

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Abstract

- **Background:** Caesarean section (SC) is a procedure that can be lifesaving in many cases. In the recent decades, there has been a remarkable increase in the rate of caesareans section in both developed and developing countries. The World health organization (WHO) recommends a caesarean section rate of 10% to 15% in Iraq, the rate for caesarean section was 24% in 2012.
- **Aim:** The aim of the study is to determine the frequency of caesarean section in comparison with the frequency of vaginal delivery and associated risk factors for caesarean section in female doctors.
- **Method:** this cross-sectional study was carried on 125 female doctors from January till April of 2019. The cases chosen randomly from all over Baghdad. they informed about the study and their approval to participate were taken. They involved by filling a questionnaire form. The analysis of data was carried out using statistical packages for social sciences Version 24.0 (SPSS 24.0). data was presented in the form of tables and charts of frequency and percentage.
- **Result and discussion:** the study was carried on 125 female doctors from Baghdad. 40% of them were underwent a caesarean delivery while 40% of the cases were underwent a vaginal delivery. Regarding high risk pregnancy and its correlation with type of delivery, 82% of caesarean section patients was with low births risk. The maternal age group “25–35” had the highest number of deliveries (56%), which is reasonable. But, when comparing the types of surgery for each maternal age subgroup, revealed that caesarean section rates were higher than vaginal birth rates for mothers aged 36 years and over, whereas CS were lower in the group of mothers aged less than 35 years. Regarding type of hospital, approximately similar distribution was found among private (48.5%) and public hospitals (51.5%) for the cesarean delivery.
- **Conclusion:** We can conclude that the incidence of caesarean section in female doctors is less common than the vaginal delivery and the peak of caesarean section was in the young age group with low birth risk in a similar distribution among private and public hospitals.

Introductions

A Caesarean section, also known as C-section or Caesar, is a surgical procedure in which incisions are made through a mother's abdomen (laparotomy) and uterus (hysterotomy) to deliver one or more babies [1].

There are three theories about the origin of the name. The name is said to derive from a Roman legal code called Lex Caesarea, which allegedly contained a law prescribing that the baby be cut out of its mother's womb in the case that she dies before giving birth. The derivation of the name is also often attributed to an ancient story, told in the first century AD by Pliny the Elder, who claimed that an ancestor of Caesar was delivered in this manner. An alternative etymology suggests that the procedure's name derives from the Latin verb caedere, to cut, in which case the term 'Caesarean section' is redundant [1].

A Caesarean section was considered an extreme measure, performed only when the mother was already dead or considered to be beyond help. In Great Britain and Ireland, the mortality rate in 1865 was 85 per cent. Key steps in reducing mortality were:

• Adherence to principles of asepsis;

• The introduction of uterine suturing by Max Sänger in 1882;

• Extraperitoneal Caesarean section and then moving to low transverse incision;

• Anesthesia advances;

• Blood transfusion;

• Antibiotics [1].

There has been a remarkable increase in the rate of caesarean section (CS) in both developed and developing countries, increasing from about 5% in developed countries in the early 1970s to more than 50% in some regions of the world in the late 1990s. Based on a survey by the World Health Organization (WHO) on methods of delivery during the period 2007– 2008, the rates of CS in chine and other Asian countries were 46% and 27%

respectively [4-5].

In 1985, WHO recommended that no region should have a CS rate over 10–15% (7-8). In Iraq, it was found that cesarean section rate for all births in Iraq was 24.4% in 2012 [4].

The reasons for the continued increase in the cesarean rates are not completely understood, but some explanations include the following [2]:

1. Women are having fewer children, thus, a greater percentage of births are among nulliparas, who are at increased risk for cesarean delivery.
2. The average maternal age is rising, and older women, especially nulliparas, are at increased risk of cesarean delivery.
3. The use of electronic fetal monitoring is widespread. This technique is associated with an increased cesarean delivery rate compared with intermittent fetal heart rate auscultation. Cesarean delivery performed primarily for “fetal distress” comprises only a minority of all such procedures. In many more cases, concern for an abnormal or “nonreassuring” fetal heart rate tracing lowers the threshold for cesarean delivery.
4. Most fetuses presenting as breech are now delivered by cesarean. concern for fetal injury, as well as the infrequency with which a breech presentation meets criteria for a labor trial, almost guarantee that most will be delivered by cesarean.
5. The frequency of forceps and vacuum deliveries has decreased.
6. Rates of labor induction continue to rise, and induced labor, especially among nulliparas, increases the cesarean delivery rate
7. The prevalence of obesity has risen dramatically, and obesity increases the cesarean delivery risk.
8. Rates of cesarean delivery for women with preeclampsia have increased, whereas labor induction rates for these patients have declined.
9. Vaginal birth after cesarean—VBAC—has decreased from a high of 28 percent in 1996 to 8 percent in 2007.
10. Elective cesarean deliveries are increasingly being performed for a variety of indications including concern for pelvic floor injury associated

with vaginal birth, medically indicated preterm birth, and for maternal request [2].

There are many different reasons for performing a delivery by Caesarean section. The four major indications accounting for greater than 70 per cent of operations are [1]:

1. Previous Caesarean section.
2. Dystocia.
3. Mal-presentation.
4. Suspected acute fetal compromise.

Maternal

- Prior cesarean delivery
- Prolonged/Obstructed labor
- Preeclampsia
- PIH- pregnancy induced hypertension
- Placenta previa
- Abruption placenta
- Maternal request
- Invasive cervical cancer
- HSV or HIV infection
- Cardiac or pulmonary disease
- Cerebral aneurysm or arteriovenous malformation [2].

Fetal

- Non-reassuring fetal status
- Malpresentation
- Macrosomia
- Congenital anomaly
- Abnormal umbilical cord Doppler study
- Thrombocytopenia
- Prior neonatal birth trauma [2].

Maternal-fetal

- Cephalopelvic disproportion
- Failed operative vaginal delivery
- Placenta previa or placental abruption [2].

In many units, Caesarean section rates for primigravidae of 24 per cent are seen. Consequently, the problem of management of a woman with a scarred uterus in subsequent pregnancies is a common antenatal problem. It is a vital part of antenatal care that women be given a clear understanding of the plan of management from early on in their pregnancy, with the caveat that this may need to be adapted if the pregnancy presents unexpected problems. The management in pregnancy following a Caesarean section should be to assess the available options and to select the appropriate choice for an individual woman. The dictum 'once a Caesarean section, always a Caesarean section' is not true; up to 70 per cent of women with a previous Caesarean section can achieve a vaginal delivery. Patient choice cannot and should not be ignored in decisions regarding management, and it is important to discuss the risks and benefits of elective Caesarean section as compared to trial of vaginal delivery [1].

From a maternal perspective, elective Caesarean section avoids labor with its risk of perineal trauma (urinary and fetal problems), the need to undergo emergency Caesarean section, and scar dehiscence/ rupture with subsequent morbidity and mortality. However, elective Caesarean section carries maternal risks: increased bleeding, thromboembolism, febrile morbidity, prolonged recovery, long-term bladder dysfunction and increased risks of placenta previa in subsequent pregnancies [1].

From a fetal perspective, an elective Caesarean section reduces the risk of scar rupture but increases the risk of transient tachypnoea/respiratory distress syndrome. There is remarkably little evidence to inform practice with regard to management of previous Caesarean section: there are no randomized trials and much of the data relate to observational studies [1].

Consideration of the risk of scar rupture is probably the most important consideration when determining whether delivery should be by elective

Caesarean section or by trial of vaginal delivery. Most published studies do not differentiate between scar dehiscence and rupture; however, analysis of observational and comparative studies indicates that the excess risk of uterine rupture following trial of labor compared with women undergoing repeat elective Caesarean section is considerably lower than 1 per cent; indeed, some studies do not demonstrate any increased risk. Providing the first operation was carried out for nonrecurrent cause, and providing the obstetric situation close to term in the succeeding pregnancy is favourable, then it is appropriate to offer a trial of labour to any woman with a previous uncomplicated lower uterine segment Caesarean section and no other adverse obstetric feature. The factors to be weighed when determining the recommended mode of delivery depend on the balance between the desires of the mother, the risks of a repeat operation, the risks to her child of labour, and the risk of labour on the strength of the old scar [1].

Cesarean deliveries are classified by the uterine incision not by the skin incision. In the low transverse cesarean delivery (LTCD), the uterine incision is made transversely in the lower uterine segment after a bladder flap is established. The advantages of this approach include decreased rate of rupture of the scar in a subsequent pregnancy and a reduced risk of bleeding, peritonitis, paralytic ileus, and bowel adhesions. For the classical cesarean delivery, a vertical incision is made in the upper segment of the uterus transverse backdown fetal position, poor access to the lower segment because of myomas or adhesions, or a planned cesarean hysterectomy. The presence of cervical cancer is a rare

indication [3].

The type of uterine incision has important implications regarding risk of uterine rupture in future pregnancies. Uterine rupture, defined as separation of the uterine incision, may cause significant maternal complications caused by massive hemorrhage and fetal damage or death. A LTCD incision is associated with a less than 1% risk of symptomatic uterine rupture in the subsequent pregnancy, although this risk may be higher if labor induction or augmentation is carried out. A classic cesarean delivery carries a 4-7% risk of uterine rupture. Patients with a classical uterine

incision are thus destined to have repeat cesareans for all subsequent deliveries [3].

Two clinical interventions have been shown to reduce cesarean delivery rates: external cephalic version (ECV) which converts a breech fetus to the vertex position to avoid a cesarean delivery for breech presentation and vaginal birth after cesarean delivery (VBAC) [3].

The overall success rate of VBAC is approximately 70% depending on the indication for the previous cesarean delivery. Compared with repeat cesarean delivery, a successful vaginal delivery is associated with less maternal morbidity without any increase in perinatal morbidity. If uterine rupture does occur, there may be a 10-fold increase in perinatal mortality and substantial maternal morbidity as well [3].

Caesarean section is a major abdominal surgical procedure and carries significant risks [1].

There are six to ten times more complications among women having a CS than a vaginal delivery, with emergency CSs being two to four times riskier than elective [6,7].

Intraoperative complications include:

- Bowel damage: Bowel damage may occur during a repeat procedure or if adhesions are present from previous surgery.
- Caesarean hysterectomy: the most common indication for Caesarean hysterectomy is uncontrollable maternal haemorrhage; life-threatening haemorrhage requiring immediate treatment after 1 in 1000 deliveries. The most important risk factor for emergency postpartum hysterectomy is a previous Caesarean section – especially when the placenta overlies the old scar, increasing the risks of placenta accrete, Other indications for hysterectomy are atony, uterine rupture, extension of a transverse uterine incision and fibroids preventing uterine closure and haemostasis. This operation, while a major undertaking, should not be left too late, as the risk of operative complications, maternal morbidity and mortality increase with increasing haemorrhage.

- Haemorrhage: may be a consequence of damage to the uterine vessels or may be incidental as a consequence of uterine atony or placenta praevia. In patients with an anticipated high risk of haemorrhage, e.g. known cases of placenta praevia, blood should be routinely crossmatched. There are many manoeuvres to manage haemorrhage; these range from bimanual compression, oxytocin infusion, administration of prostaglandins, conservative surgical procedures, such as uterine compression sutures to the more radical, but lifesaving, hysterectomy.
- Placenta praevia: the proportion of patients with a placenta praevia increases almost linearly after each previous Caesarean section, and as the risks of such a complication increases with increasing parity, future reproductive intentions are very relevant to any individual decision for operative delivery.
- Urinary tract damage: the risk of bladder injury is increased after prolonged labours where the bladder is displaced caudally, after previous Caesarean section where scarring obliterates the vesicouterine space, or where a vertical extension to the uterine incision has occurred. If damage is suspected, then transurethral instillation of methylene blue-coloured saline will help to delineate the defect. When such an injury is observed, repair with 2-0 Vicryl as a single continuous or interrupted layer is appropriate. The urinary catheter should remain in situ for 7–10 days. Damage to the ureters is uncommon as refl ection of the bladder displaces them rostrally [1].

Post-operative complications include:

- Infection and endometritis: Women undergoing Caesarean section have a 5–20-fold greater risk of an infectious complication when compared with a vaginal delivery. Complications include fever, wound infection, endometritis, bacteraemia and urinary tract infection. Other common causes of postoperative fever include haematoma, atelectasis and deep vein thrombosis. Labour, its duration and thepresence of ruptured membranes appear to be the most important risk factors, with obesity playing a particularly important role in the occurrence of wound infections. The most important source of microorganisms responsible

for post-Caesarean section infection is the genital tract, particularly if the membranes are ruptured preoperatively. Even in the presence of intact membranes, microbial invasion of the intrauterine cavity is common, especially with preterm labour. Infections are commonly polymicrobial and pathogens isolated from infected wounds and the endometrium include Escherichia coli, other aerobic Gram-negative rods, and Group B streptococcus. General principles for the prevention of any surgical infection include careful surgical technique, skin antisepsis; prophylactic antibiotics should be administered to reduce the incidence of postoperative endometritis.

- Pulmonary emboli and deep vein thrombosis: deaths from pulmonary embolism remain the leading direct cause of maternal death, and Caesarean section is a major risk factor. The incidence of such complications can undoubtedly be reduced by the peri-operative administration of prophylactic heparin and the prompt initiation of treatment when required.
- Psychological: all difficult deliveries carry increased maternal psychological and physical morbidity. The compromised postpartum psychological functioning in women delivered by Caesarean section may be secondary to delayed contact with the baby; a factor that in most cases should be amenable to remedy [1].

Aim

The aim of the study is to determine the frequency of caesarean section in comparison with the frequency of vaginal delivery and associated risk factors for caesarean section in female doctors.

Method

- Study design:

Prospective cross-sectional study with analytic elements.

- Place & timing of data collection:

The data were collected from female doctors from all over Baghdad, Iraq from January till April of 2019.

- Target population and sampling technique:

Target population is the female doctors who have undergone cesarean section from Baghdad. The study carried on 125 female doctor 60% of theme were having a caesarean delivery.

- Data collection:

Questionnaire: The questionnaire included: Maternal age, parity, history of previous deliveries, indications/risks for cesarean section, maternal medical history (including HTN, DM), the maternal and fetal risk factors for C/S.

All the information was collected by direct interview with the patients after taking their consent, when a cesarean section is performed, there is often more than one indication present. in our project, we have focused upon the main indication that led to the procedure.

- Ethical consideration

Confidentiality and personal privacy were respected in all levels of the study. Collected data will not be used for any other purpose.

- Statistical analysis

The analysis of data was carried out using statistical packages for social sciences Version 24.0 (SPSS 24.0). data was presented in the form of tables and charts of frequency and percentage.

Results

It was observed that, in total, 50 (40%) live births were delivered by CS, while the remaining deliveries were normal vaginal delivery, as shown in fig. 1.

Table (1): Types of surgery according to frequency

Type of Delivery	Caesarean delivery	Vaginal Delivery	Total
Frequency	50 (40%)	75 (60%)	125 (100%)

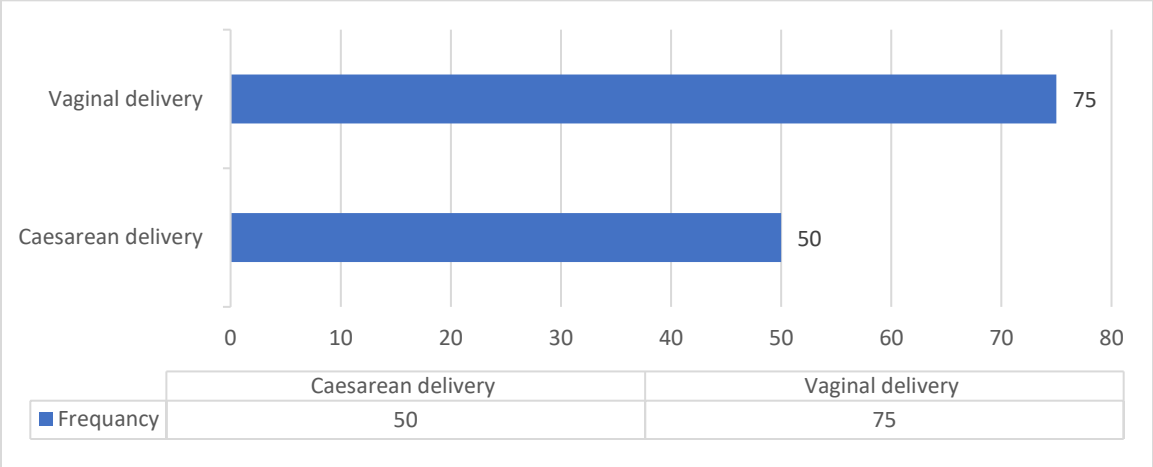

Figure (1): Types of surgery according to frequency

Regarding high risk pregnancy and its correlation with type of delivery, predictors of CS in patient with low risk births for 41 (82%) patients, as shown in fig. 2

Table (2) Type of delivery identifiable predisposing factors

Risk of pregnancy	Type of delivery	
	Vaginal delivery	Cererian Delivery
Low Risks	52 (70%)	41 (82%)
High risk	23 (30%)	9 (18%)
Total	75 (100%)	50 (100%)

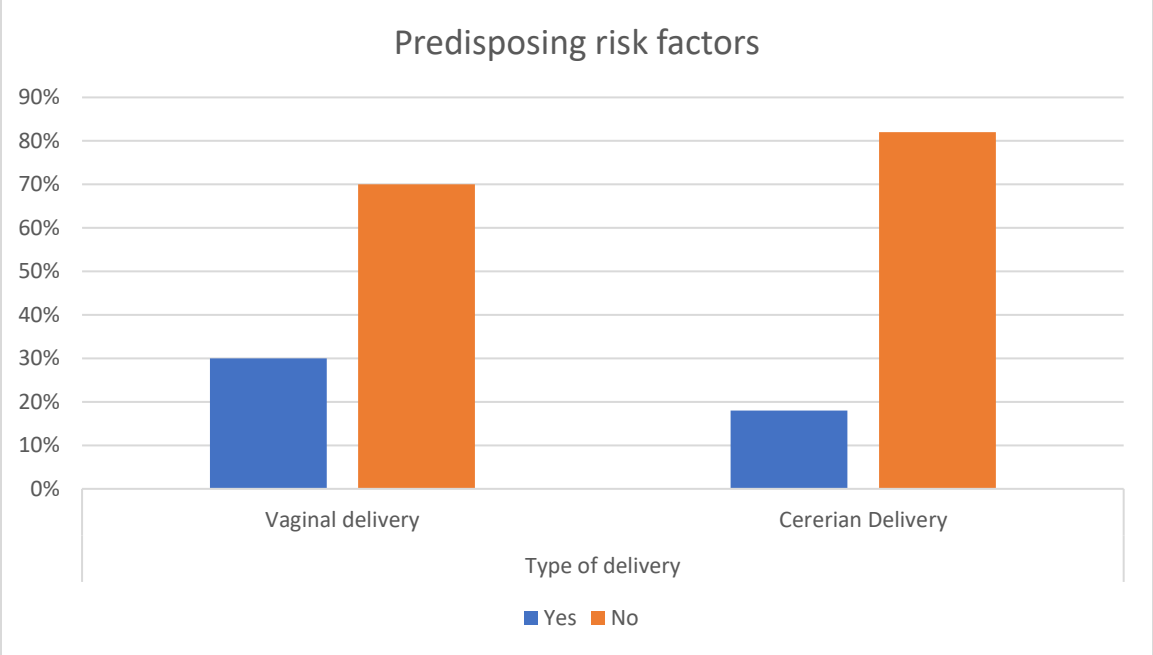

Figure (2) Risks of pregnancy in correlation to type of delivery

As for the analysis of CS rates in terms of maternal age, the maternal age group “25–35” had the highest number of deliveries (56%), which is reasonable. But, when comparing the types of surgery for each maternal age subgroup, Fig. 3 revealed that C-section rates were higher than vaginal birth rates for mothers aged 36 years and over, whereas CS were lower in the group of mothers aged less than 35 years.

Table (3) Age Groups Distribution

Age Groups	**Frequency**		**Total**
	Cesarean delivery	**Vaginal Delivery**	
25-35	25 (50%)	45 (60%)	75 (100%)
35-45	19 (38%)	12 (16%)	37 (100%)
45-55	6 (12%)	18 (24%)	13 (100%)
Total	50	75	125

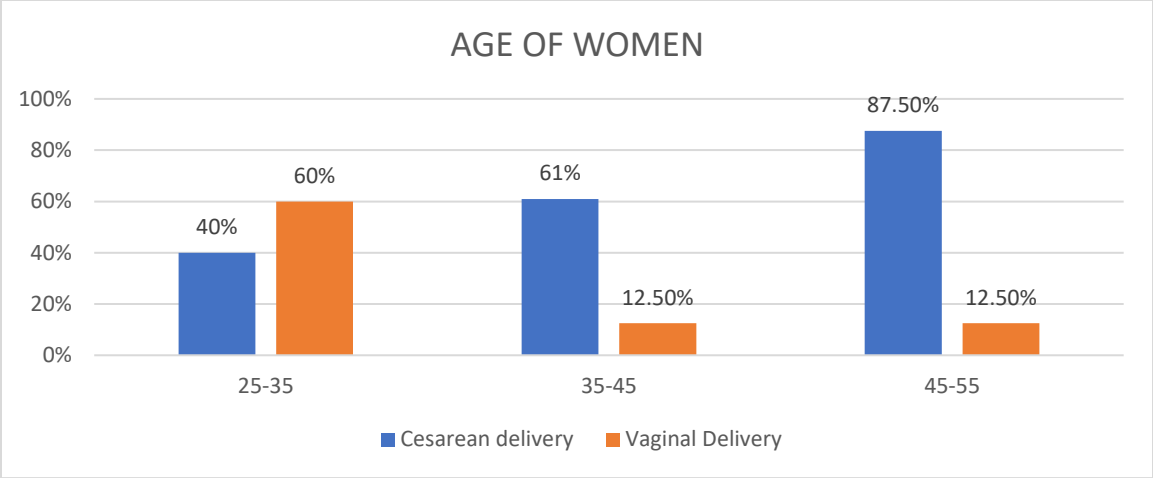

Figure (3): Age groups distribution

Regarding type of hospital, approximately similar distribution was found among private (48.5%) and public hospitals (51.5%) for the cesarean delivery.

Table (4) Type of hospital for the type of delivery

Type of Hospital	Cesarean Delivery	Vaginal Delivery
Public	24 (48.5%)	39 (51.5%)
Private	26 (51.5%)	36 (48.5%)
Total	50 (100%)	75 (100%)

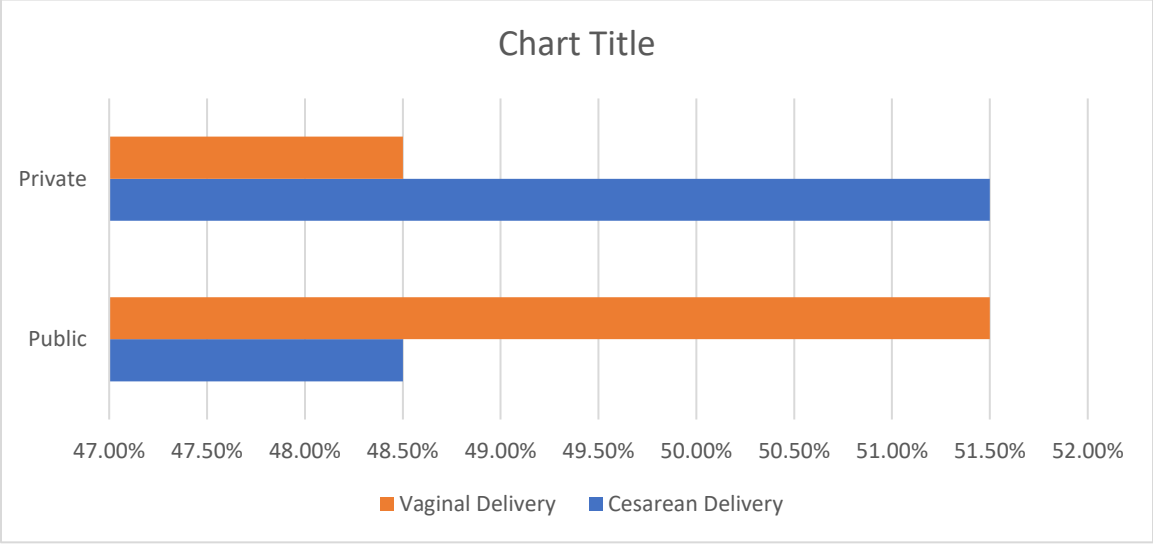

Figure (4) Type of hospital for the type of delivery

Discussions

In this study, the analysis of this data indicated an overall CS rate of about 40% which is not only above the WHO's recommendation (15%) but also higher than the reported studies done by, Elzahaf [8] which stated that CS rate was about 23%, multiple factors, like place of delivery, household wealth index, residence, age of mother at first delivery, number of ANC can be looked upon in order to keep check on unwanted CS births.

Regarding risks of delivery, only 18% patients were delivered under care of consultants dealing with high-risk pregnancies, which is similar to the results reported by Ahmed [9] which stated that only 16% underwent high risk pregnancies.

Regarding the findings of maternal age distribution among the female doctors in this study, highest number of deliveries were within 35-45 with C-section rates were higher than vaginal birth rates for mothers aged 36 years and over, these findings different to these findings reported by Ahmed et al [9] which stated that the mean age of cesarean section was about 26 years, these findings might have attributed to ages included in their study was up to 40 years old.

In this study, the type of hospital admission required for delivery, was found to approximately similar found among private (48.5%) and public hospitals (51.5%) for the cesarean delivery, these findings were similar to these reported by Zgheib et al [10].

Conclusion

We can conclude that the incidence of caesarean section in female doctors is less common than the vaginal delivery and the peak of caesarean section was in the young age group with low birth risk in a similar distribution among private and public hospitals.

Recommendations

In modern obstetrics, Caesarean section is a major surgical procedure for delivery. In spite of its low rate of maternal morbidity and mortality due to improved surgical technique and modern anesthetic skill, it still carries a slightly greater risk than normal vaginal delivery and risk is more in subsequent pregnancies. Those risks can be reduced by giving advice for a strict and regular antenatal checkup during pregnancies to emphasize the need for an elective operation, if the indications are recurrent one.

The rate of caesarean section is generally rising in many parts of the world, including Iraq. Caesarean section rate as recommended by WHO is 10% - 15% of total deliveries. One should try to abide by the guidelines.

References

1. Teachers T. Obstetrics by ten teachers. In Kenny PNB&LC, editor.. London: Hodder Arnold; 2011. p. 249-255.
2. Bloom FGCKJLSL, editor. In Williams OBSTETRICS. 24th ed.: McGraw-Hill Education; 2014. p. 606-607.
3. Neville F. Hacker MJCG. In Essentials of obstetrics and gynecology. 6th ed. Philadelphia: Elsevier, Inc.; 2016. p. 238. for birth. Lancet 1985.
4. Belizan JM, Althabe F, Barros FC, Alexander S: Rates and implications of caesarean sections in Latin America: ecological study. BMJ 1999, 319:1397–1400.
5. Villar J, Valladares E, Wojdyla D, Zavaleta N, Carroli G, Velazco A, Shah A, Campodónico L, Bataglia V, Faundes A, Langer A, Narváez A, Donner A, Romero M, Reynoso S, de Pádua KS, Giordano D, Kublickas M, Acosta A, WHO 2005 global survey on maternal and perinatal health research group: Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and perinatal health in Latin America. Lancet 2006, 367:1819–1829.
6. Selinger H: Maternal request for caesarean section: an ethical consideration. J Med Ethics 2014, 40(12):857–860.
7. World Health Organization: Appropriate technology 2(8452):436–437.
8. Elzahaf R, Ajroud S. Prevalence and indication of cesarean section in Al-Wahda Hospital, Derna, Libya: A retrospective study. Libyan Journal of Medical Sciences. 2018;2(2):68.
9. Ahmed I, Shahwar D, Akhtar M, Amerjee A. Caesarean Section rate amongst Obstetricians at a tertiary-care hospital of Karachi. Pakistan Journal of Medical Sciences. 2018;34(3).
10. Zgheib S, Kacim M, Kostev K. Prevalence of and risk factors associated with cesarean section in Lebanon — A retrospective study based on a sample of 29,270 women. Women and Birth. 2017;30(6): e265-e271.