Cesarean section rate in Al-Wahda teaching hospital, Aden, (January - June) 2011

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Abstract

The aim of the study is to estimate the monthly rate of cesarean section (CS) in Al-Wahda Teaching Hospital and to evaluate the most common indications for cesarean section, and some factors such as : maternal age, parity; as well as Apgar scoring for fetal outcomes of cesarean sections for (391) audited cesarean section done at Al-Wahda Teaching Hospital in Aden Governorate from January 1st to June 30th 2011.

A retrospective descriptive review of cesarean section files was conducted at the Department of Obstetrics and Gynecology, Al-Wahda Teaching Hospital.

There were a total of 2741 deliveries performed during the six months period with cesarean section of 391, giving a rate of 14,26% of the total deliveries. The majority were primary cesarean sections (66.75%) while the remaining (33.25%) were repeated cesarean sections. This rate was not running in a harmonious flow each month. It was noticed that in April 2011, the rate was the highest (21.23%), and the lowest rate was on May(7.93%).

Nearly half of the cesarean sections were pluripara (48.8%), and the age groups from 21 to 40 years represented a percentage of (85.4%). The main three indications of CS were cephalo- pelvic disproportion (28.39%), breech presentation (13.30%) and fetal distress (11.00%). All still births (SB) were due to a rupture uterus and Abruptio placenta.

Key words: Cesarean, Apgar score, grand multipara, cephalo-pelvic disproportion, breech.

Introduction

A caesarean section, is a surgical procedure in which one or more incisions are made through a mother's abdomen (laparotomy) and uterus (hysterotomy) to deliver one or more babies, or, rarely, to remove a dead fetus. The first modern caesarean section was performed by a German gynecologist, Ferdinand Adolf Kehrer, in 1881.Cesarean section is one of the oldest operations in surgery. It continues to be one of the most important operations performed in obstetrics and gynecology[14]

A Caesarean section is usually performed when a vaginal delivery would put the baby's or mother's life or health at risk although, in recent times, it has also been performed upon request for childbirths that could otherwise have been natural.[14,19]

The origin of the term "cesarean" is not entirely clear. It is unlikely that Julius Caesar was born by abdominal delivery, as this was almost universally fatal for the parturient during that era and Caesar'smother is known to have survived his birth.[19] Another possible origin of the term is the Latin verb caedere, which means "to cut". Others believe the term originated from the Roman custom, Lex Cesare, which mandated postmortem operative delivery when mothers died during childbirth, so that mother and child could be buried separately. The term "cesarean section" is also a matter of discussion. The term is a tautology — using different words to say the same thing twice — where the additional words fail to provide additional clarity while repeating a meaning. In this case, both words refer to an incision. A more proper term for the procedure is cesarean delivery. [19]

Cesarean section rates show a wide variation among countries in the world, ranging from 0.4 to 40 percent, and a continuous rise in the trend has been observed in the past 30 years. [3]

The number of women having babies born by cesarean section is rapidly growing in both the developed and developing countries.[24]The World Health Organization has justified that the cesarean rate is greater than 10% to 15%.[16,33] However, in 2004, the cesarean rate was about 20%

in the United Kingdom as opposed to 23.7% in Canada between 2002 and 2003. [15] In 2004, approximately 1.2 million women in the United States had a cesarean birth representing 29.1% of all births. [18]

In recent years, the rate has risen to a record level of 46% in China and to levels of 25% and above in many Asian, European and Latin American countries. The rate has increased significantly in the United States, from 21 percent in 1996 to 33 percent of all births in 2011, and the rate in 2009 varied widely between hospitals (ranging from 6.9% to 69.9% of births.[6]Across Europe, there are significant differences between countries: in Italy the cesarean section rate is 40%, while in the Nordic countries it is only 14 %.[6, 25]

Among the developing countries, Brazil has one of the highest rates of cesarean sections in the world, which reached a high peak of 36.4% in 1996. [12] Population- and hospital-based cesarean section rates for the 18 Arab countries are as follows: Yemen, Mauritania, Sudan, and Algeria have population cesarean section rates below 5%; while Palestine, Oman, Morocco, Libya, Tunisia, Saudi Arabia, UAE, Egypt, Jordan, Kuwait, and Syria have cesarean rates ranging from 5% to 15%; and the three countries with rates above 15% are Lebanon, Qatar and Bahrain.[24]

The maternal mortality rate associated with cesarean section varies in different series from 4/100.000live births to 80/100.000.It has been reported that the risk of death from cesarean section can be 26 times greater than vaginal delivery.[8]

In Yemen, the only available data concerning the rate of cesarean section was dating back to 1997 where the rate observed to be 9.0 %.[26]

In Aden, at Al-Wahda Teaching Hospital, Shaker Arwa performed a study as a hospital based study; she reported a rate of 7.1% in 1995, 9.4% in 1996, 8.7% in 1997, and 9.3% in 1998. [26] Obel Asmahan study in Aden General Teaching Hospital (2002-2004) reported a rate of 6.1% in 2002, 7.5% in 2003 and 12.8% in 2004. [22]

This study was conducted to estimate the monthly rate of CS and to evaluate the most common indications of the operated CS and to highlight the areas where improvement could be made.

Patients and methods

This is a descriptive retrospective , hospital based study , which was carried out at Al-Wahda Teaching Hospital , from January 1st to June 30th 2011, including (391) cesarean sections. Factors were analyzed from records include age of the mother, parity, type of cesarean: emergency or elective, previous history of cesarean section, indication for cesarean section, APGAR score at the fifth minute of infant life. These data were collected from the clinical records, using designed form, analyzed and processed by using computerizing system SPSS version 15. Data were represented in tables and figures.

Results

In the year 2011, from January 1st to June 30th, in Al-Wahda Teaching Hospital, Aden Governorate –Yemen, 391 Cesarean Sections were done, representing 14.26% of the total hospital deliveries (2741) for the same period. Among this percentage, the majority were primary Cesarean sections (66.75%) while the remaining (33.25%) were repeated Cesarean sections.

Table 1: Frequency of different types of Cesarean Section in Al-Wahda Teaching Hospital,January1st to June 30th 2011

TYPE OF CESAREAN SECTION	January-June 2011	
	No.	%
Primary Cesarean Section	261	66.75
Previous one Cesarean Section	96	24.55
Previous two Cesarean Section	26	6.65
Previous three Cesarean Section	8	2.05
Total Cesarean Sections	391	100.00

The rate of Cesarean section in Al-Wahda Teaching Hospital in the period of study was 14.26 / 100 hospital delivery. This rate was not running in a harmonious flow each month. It was noticed that the highest rate was (21.23%), while the lowest rate was on May (7.93).

Table 2: Rate of Cesarean Section per month in Al-Wahda Teaching Hospital, January 1st to June 30th 2011

Month	Cesarean section		Vaginal delivery		Total deliveries
	No.	Rate	No.	Rate	
January	80	20.46	456	79.54	536
February	56	14.32	333	85.68	389
March	67	17.14	306	82.86	373
April	83	21.23	357	78.77	440
May	31	7.93	417	92.07	448
June	74	18.92	481	81.08	555
Total	391	14.26	2350	85.74	2741

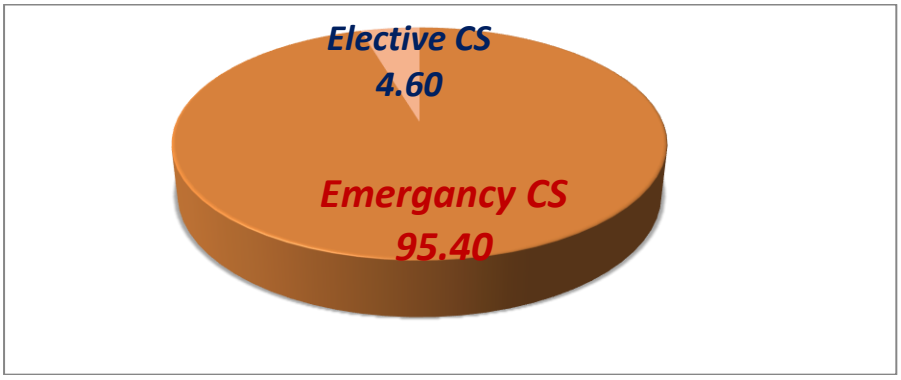

Figure no. 1: Timing of Cesarean Section in Al-Wahda Teaching Hospital, from January 1st to June 30th 2011

It is clear from Fig (1), that emergency CS was more than twenty folds than elective one.

From Table (3), it is clear that nearly half of the Cesarean sections studied were pluripara (48.85%) followed by the nullipara (39.39%), multipara (6.39%), and grand multipara (5.37%).

Table 3: Distribution of Cesarean Sections in Al-Wahda Teaching Hospital- January 1st to June 30th 2011, according to parity and maternal age

Parity	Maternal age									
	≤ 20 years		21-30 years		31-40 years		> 40 years		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Nullipara (0)	37	24.05	96	62.33	20	12.98	1	0.64	154	**39.39**
Pluripara (1-3)	7	3.66	120	62.83	59	30.89	5	2.62	191	**48.85**
Multipara (4-5)	0	0.00	10	40.00	12	48.00	3	12.00	25	6.39
Grandmultipara (≥6)	**0**	0.00	7	31.82	10	45.45	4	18.18	21	5.37
Total	44	11.25	233	**59.59**	101	**25.83**	13	3.33	391	100.00

Concerning maternal age, most of the study populations (85.42%) were in the age groups from 21 years to 40 years, while the low percentage (14.58%) was noticed in the age less than 21years and more than 40 years. From the 85.4%, the age group 21-30 years represents (59.59%), followed by the age group 31-40 years with (25.83%). The low percentage represented by 11.3% for those underwent cesarean section with the age ≤20 years, and 3.3% for those with the age >40 years.

Table (4) demonstrates the common indications for Cesarean sections done in Al-Wahda Teaching Hospital for the period of the study. Nearly one quarter of the registered cases done under an indication of cephalo pelvic disproportion (28.39 %), while breech presentation represented (13.30%), fetal distress(11.00%), and contracted pelvis (9.21%) and less cases was performed for the indications of previous two scars or more (7.67), malposition (2.30%), failure of progress of labor (4.09%), placenta previa (3.83), diabetes mellitus (3.83), twins (3.58%), obstructed labour (2.56%), transverse lie (2.05%), pre-eclampsia (2.05%); previous colpotomy (1.79%), tender scar (1.53%), abruption placenta and precious baby (1.02%) for each, and the lowest percentage was done for the indications of rupture uterus, and cord prolapsed each one represents a rate of (0.26%).

Table 4: Relation of APGAR score and Indications for Cesarean Sections in Al-Wahda Teaching Hospital, January 1st to June 30th 2011.

Indication of cesarean section	APGAR SCORE							
	SB		Less than 7		7 or more		Total	
	No.	%	No.	%	No.	%	No.	%
Cephalo pelvic disproportion	1	0.90	10	9.01	100	90.09	111	28.39
Breech presentation	1	1.92	6	11.54	45	86.54	52	13.30
Fetal distress	0	0.00	15	34.88	28	65.12	43	11.00
Contracted pelvis	1	2.78	4	11.11	31	86.11	36	9.21
Previous two scars or more	2	6.67	3	10.00	25	83.33	30	7.67
Failure of progress	0	0.00	2	12.50	14	87.50	16	4.09
Placenta previa	2	13.33	3	20.00	10	66.67	15	3.83
Diabetes mellitus	1	6.67	1	6.67	13	86.66	15	3.83
Twins	0	0.00	3	21.43	11	78.57	14	3.58
Obstructed labour	1	10.00	3	30.00	6	60.00	10	2.56
Malposition	0	0.00	2	22.22	7	77.78	9	2.30
Pre-eclampsia	0	0.00	2	25.00	6	75.00	8	2.05
Transverse lie	0	0.00	1	12.50	7	87.50	8	2.05
Previous colpotomy	0	0.00	0	0.00	7	100.00	7	1.79
Tender scar	0	0.00	1	16.67	5	83.33	6	1.53

Abruption placenta	2	50.00	0	0.00	2	50.00	4	1.02
Precious baby	0	0.00	0	0.00	4	100.00	4	1.02
Rupture uterus	1	100.00	0	0.00	0	0.00	1	0.26
Brow presentation	0	0.00	1	100.00	0	0.00	1	0.26
Cord prolapsed	0	0.00	1	100.00	0	0.00	1	0.26
Total	12	3.07	58	14.83	321	82.10	391	100

Regarding APGAR score, as shown in Table 4, (82.10%) of neonates delivered by CS were with APGAR score 7 or more, while 14.83% were with APGAR score less than 7, and 3.07% delivered Still Birth (SB). Still birth were high among cases diagnosed as placenta previa and abruption placenta, All cases (100%) which operated as a rupture uterus and 50% of those with abruptio placenta, their neonates were SB.

Discussion

Cesarean section (CS) was introduced in clinical practice as a life saving procedure both for the mother and the baby. As other procedures of some complexity, its use follows the health care inequity pattern of the world: under use in low income settings, and adequate or even unnecessary use in middle and high income settings.[11]

In the United States, Menacker and Hamilton (2010) reported a rate of (32%). In addition to clinical reasons, nonmedical factors were suggested for the widespread and continuing rise of the cesarean rate and this may include maternal demographic characteristics (e.g., older maternal age), physician practice patterns, and maternal choice. [18]

In California hospitals, Stafford reported a high rate of cesarean sections (24.4%)[29], as well as in India by Asha Oumachigui (25.4 %) in 1998-1999.[4] Canada's cesarean section rate reached an all-time high (22.5%) of in-hospital deliveries in 2002.[7] Shanti Subedi, in Nopal, reported (19.89%) caesarean rate.[28]

Rates of caesarean section in many countries have increased beyond the recommended level (WHO, 1985). Judicious use of oxytocics and the use of partograph are definitely beneficial to reduce the CS rate. [28]

In the Arab countries, high rates still reported in Egypt (22%) as reported by Khawaja and coworkers. [13] In Saudia Arabia, the rate was 19.1% in 2006 by Ba'aqeel. [5] The cesarean section rate in Oman has gradually increased over ten years from 9.7% in 2000 to 15.72% in 2009, according to the annual report of the Ministry of Health in Oman and this is near our results in this series.[2] Lower rate was reported by Mulhim and coworkers (9.8%) in Bahrain 2001. [20]

According to this study, in AL-Wahda Teaching Hospital, the cesarean section rate during the study period was 14.26 per 100 deliveries. This rate is higher than Shaker Arwa study [26] as well as Obel Asmahan study. [22]The increased rate may be due to several reasons, the first and the foremost is the nature of the referral hospital that accept and treat any complicated cases arriving to it from neighboring hospitals and the other reason may include the decrease practice of instrumental vaginal deliveries.

According to Wanyonyi and Karuga (2010), the rising rates of primary CS have resulted in a larger obstetric population with scarred uteri. [32] In our study , the majority were primary cesarean sections (66.75%) while the remaining (33.25%) were repeated cesarean sections. Mulhim and Coworkers reported that about 49%of the caesareans were primary procedures. [20]

Although Thonneau at Guinea (West Africa), in his study from July 1989 to June 1990, reported that parity is not constituted as a risk factor. [31] Other series proved that parity has an even greater influence on the mode of delivery than age. Ragosch et al, found that multipara over the age of 40

years underwent surgical delivery in a percentage of 30.1%, compared with 77.3% for primipara of the same age. They also found that the rate is not differing when the age of primipara is younger (20-29 years) (39.3%) than multipara (30-39) (35.3%).[23] Mulhim and Coworkers, in their study, found that more caesarean sections were performed in women with parity < 5.[20] The majority of women undertaking CS were multiparous, while primigravidas reported one third [10], and Shamshad in her study in Pakistan 2007 found that primigravida were (37.1%), multigravida 42% and grand multigravida 20.6%. [27]

In our study, the majority of women undertaking CS were pluripara (48.8%), while primigravida represented (39.1%). This high rate of CS in the primipara women may have implications not only on the future reproductive potentials of these group of patient, but potentially increase the future CS rate.

Menacker and Hamilton reported in their study that the rates of cesarean delivery typically rise with increasing maternal age. The rate for mothers aged 40–54 years in 2007 (48%) was more than twice the rate for mothers under age 20 (23%).[18]

Mulhim and Coworkers found that more cesarean sections were performed in women below the age of 30 years. [20] In our series, most of the study populations (85.42%) were in the age groups from 21 years to 40 years, and only little percentage (14.58%) was noticed in the age less than 21years and more than 40 years.

The frequency of CS depends on the inherent characteristics of obstetric population, socio-demographic pattern, referral role of the hospital, departmental policies regarding management of cases with dystocia, breech, fetal distress and previous CS, physician factor, medico-legal aspects and consideration of maternal choice and wishes. [21]

The main overall indication in the present study was cephalo-pelvic disproportion(CPD) 111 cases (28.39%), followed by fetal distress and breech; this is similar to that reported by Mulhim and Coworkers who registered that the leading cause of caesarean sections was cephalo-pelvic disproportion, followed by breech presentation and fetal distress.[20] Nearly similar frequency of CS indications was reported by Ciss et al, in the Maternity of Daker University Hospital (1992-1995) which was feto pelvic disproportion (32.5%) especially pelvic problems(27.0%). [9] Gainesville T, in Florida, (1993-2001) reported CPD as a major indication for cesarean section (21.7%) followed by breech presentation (5.6%). [30] Abitbol M.M, in 1997 at Jamaica Hospital Medical Center (USA), found that CPD and severe dystocia were the frequent leading to cesarean birth. [1], while Asha Oumachigui reported that Previous scar is the first indication, followed by fetal distress and breech presentation, multiple pregnancy, and pregnancy resulting from assisted reproductive techniques [4], also in Egypt, it was reported by Ebrashy et al (2008) that previous scare , either or more is the leading cause of CS followed by CPD and fetal distress **[10], w**hile Shanti Subedi in Nobel reported that fetal distress is the first indication (26.25%), followed by Previous caesarean(21.25%) and Failed induction (11.25%). [28]

This study found that most of the extracted babies (82.10%) had APGAR score ≥ 7 at the fifth minute of life with APGAR score< 7 was (14.83%). This finding is slightly higher than that reported nationwide (1.4%) [1], while still birth (SB) was registered in (3.07%) of extracted infants. This slight increment in the percentage of babies having low APGAR score is not a surprise for a developing community such as Yemen, where the majority of mothers had low or intermediate socio-economic level and absent or bad antenatal care.

As maternal mortality is one of the health indicators that differentiate developed from developing countries, fortunately during the period of study there was no registered cases of maternal mortality due to CS.

Conclusion and Recommendation:-

The cesarean section rate is still high with continuous increasing more than the previous study. A partogram with a 4-hour action line should be used to monitor progress of labour of women in

spontaneous labour with an uncomplicated singleton pregnancy at term because it reduces the likelihood of CS.

Pregnant women should be given evidence-based information about CS during the antenatal period because about 1 in 7 women will have a CS. This should include information about CS critically analyze the reasons for high rates and develop appropriate guidelines to reduce the rates. The decision to perform a CS must be maternity-centered and not technology-centered. Very careful monitoring and facilities for emergency surgery are essential.

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معدل العمليات القيصرية في مستشفى الوحدة التعليمي، عدن للفترة من يناير – يونيو 2011

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الملخص

الهدف من الدراسة: هو تقدير معدل العمليات القيصرية في مستشفى الوحدة التعليمي وتقييم المؤشرات لعمل العمليات القيصرية وبعض العوامل المؤثرة مثل عمر المرأة وعدد الولادات السابقة ومقياس أبجر بالنسبة لمخرجات 391 عملية قيصرية تم التدقيق فيها وعلاقتها بحالة الطفل المولود .

هذه الدراسة وصفية مرجعية للعمليات القيصرية التي أجريت في قسم النساء والتوليد في مستشفى ا لوحدة التعليمي . وتمت2741 ولادة خلال 6 أشهر وأجُريت 391 عملية قيصريه بمعدل14.26%، وأغلبها عمليات قيصرية أولية بنسبة (66.75 %) في حين 33.25% عمليات مكررة. أنَّ هذا المعدل لا يسير بشكل متسق في كل شهر حيث لوحظ انَّ أعلى معدل في شهر ابريل (14.32%) واقل معدل في شهر مايو (7.93%). وتقريبا نصف العمليات القيصرية أجريت لنساء لديهم 1-3 أطفال وبنسبة (48.8%)بالنسبة لعمر المرأة وجد أنَّ الفئة العمرية مابين 21 إلى 40 عام يمثلوا نسبة عالية (85.4%). ومن أكثر المؤشرات للعمليات القيصرية: عدم اتساق الحوض مع رأس الجنين بنسبة (28.39%)، وضعية المجيء بالمقعد (13.30%) واضطرابات الجنين (11.0%).جميع الأطفال الموتى نتيجة انفجار الرحم و انفصال المشيمة قبل وقتها.

الكلمات المفتاحية: عملية قيصرية، مقياس أبجر، الأمهات ذات الحمول أكثر من 6، اضطرابات الجنين، عدم اتساق الحوض مع رأس الجنين والمجيء بالمقعد.