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# RISING TRENDS OF C- SECTION: IN A DEFENCE ZONAL HOSPITAL: A RETROSPECTIVE STUDY

Gynaecology

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## ABSTRACT

**Objective:** To study rising trend of caesarean section in a defence zonal hospital when compared to world wide rates,its causes and effects. The rising rate of caesarean section is due to multiple reasons social, economic, over medicalisation, defensiveand distress medicine and not mainly due to commercialization as is widely thought, as this hospital provides totally free services and has no commercial angle to it. Hence present study is under taken.

**Study Subjects And Methods:** All ladies of reproductive age group who reported for antenatal services, were selected ,of all ages between jan 2015 to dec 2016 .

**Results:** A total 818 mothers were studied. Of that caesarean section rate was 45.5% and 54.5% had vaginal deliveries. The present study when compared to worldwide and national figures at an average shows an increasing trend as rates worldwide of vaginal deliveries was 67% and caesarean was 33% between the study period. Among the overall caesarean sections the Elective cases were 43.9% and Emergency section were 56.1%.Out of elective cases majority were repeat sections.

**Conclusion:** In This study an attempt has been made to understand the real reasons for this increasing trend and it clearly indicates that the rapid socio-economic changes and the outlook towards surgical intervention by the women, families and society, a zero error approach medicine practiced by clinician to have better outcome and to avoid being in any type of medico-legal situation are increasingly responsible. Further the increasing use of operative deliveries forms a vicious circle where VBAC are becoming rarer and is further leading to enhanced cesarean rates.

## KEYWORDS

cesarean section, increasing trends, social reasons, zero error syndrome.

**Introduction**:

This study was done in a non commercial defence zonal hospital. We propose that the underlying cause of increasing trend may be due to a number of factors like biosociological effect, over medicalisation of women's health, altered family structure, improving economic condition, changing role of women in society, biological urge to have good off-springs [1].Medicalisation has been defined as a process whereby more and more of human life have come under medical scrutiny, influence and supervision and childbirth is an example of that. The rising trend in c-section rates, in both developed as well as developing countries is due to the higher preference accorded to this mode of delivery, over scrutiny of the process of child birth, rising concern for the mother's health, which in turn may lead to unnecessary obstetrical intervention. According to Brue kens P (2001) Over medicalisation of maternal care has become a worldwide epidemic [3,4]. Gibbons et al., (2010) reported that in United States of America, the proportion of caesarean birth to total births increased from 20.7 per cent in 1996 to 31.1 per cent as early as in 2006[5]. As per the data by Family Welfare Statistics in India (2011) the overall rate for caesarean deliveries was 36%. In our hospital, in the year 2004 caesarean section rate was 25%. Most of the studies emphasized the role of bio-sociological effect , over medicalisation of women's health, altered family structure, improved economic condition, changing role of women in society, biological urge to have good off-springs. There are possibly two general explanations for the increased c-section trend. First, it is mostly considered that the increase in caesarean section births worldwide is the result of overuse of healthcare facilities for the reasons described above. The other reason is because most of the mothers with complications referred from peripheral hospitals to tertiary care centre and therefore higher rates of c section, it is also considered that there is an increasing demand from women even in developing countries for Caesarean section to avoid pain with the increasing economic and educational advancement [6]. A trial for vaginal birth after a previous CS (VBAC) is considered to have increased risk of complications and is therefore almost taken as an indication for repeat section. It is seen that there is currently less enthusiasm for VBAC by trial of scar or of labor. It is evident that whereas Caesarean Section is doctor friendly, VBAC is not. The rate of VBAC in USA is down from 17%(1996) to 11%(1999)[7]. According to reproductive ecology some other factors influencing women are increased rates of infertility. Due to Psychological adjustment to small families, they have fear complex about the risk of foetal outcome, and chances of survival of the new born baby.[8]. Therefore the current paper will be an attempt to explore the real indications for rising caesarean sections by analyzing the data on mothers who underwent caesarean section with various reasons and the determinants for the increasing trend, considering both institutional aspects as well as socioeconomic causes.

**Material and methods:**

This study was carried out at a zonal defence hospital in central India. The study subjects included women of all age groups who reported for antenatal care in reproductive age - groups between 18-45 years from January 2015 to December 2016 and statistical data collected. A total of 818 subjects were included in the study. They were analyzed on rates, demographic analysis, percentage of patients who underwent cesarean deliveries, indications and maternal morbidity.

**Results:**

A total of 818 live deliveries occurred in the study period, out of which 373 delivered by caesarean section. The overall caesarean section rate was 45.5%.The rate of primary caesarean section was 66% and repeat section rate was 42%.56.1% of cesarean section was done as emergency procedure and 39.1% as elective (Table 1). Out of 818 deliveries there was no maternal mortality and 5 neonatal mortality.

The most common indication for caesarean section was previous delivery by C-section(41.8%) followed by caesarean section for fetal distress (13.7%),arrest of labor(7.5%),Intra uterine growth restriction (6.4%) and breech presentation(5.4%) (Table 2).

**Table 1: Caesarean section rates**

| Mode of Delivery | Number of cases | % | Maternal mortality | Foetal mortality |
|---|---|---|---|---|
| Vaginal delivery | 445 | 54.5 | nil | 5 |
| Abdominal delivery | 373 | 45.5% | nil | 0 |
| Primary /repeat | | | | |
| Primary section | 217 | 58% | | |
| Secondary section | 156 | 42% | | |

**Table 2:Indications of caesarean section**

| Indications | Number of cases | % |
|---|---|---|
| Previous C-section | 156 | 41.8 |
| Fetal distress | 51 | 13.7 |
| Arrest of labor | 28 | 7.5 |
| IUGR | 24 | 6.4 |
| Breech | 20 | 5.4 |
| CPD | 19 | 5 |

| | | |
|---|---|---|
| PIH | 15 | 4 |
| Maternal indication | 14 | 3.8 |
| Oligohydramnious | 11 | 2.9 |
| Multifetal gestation | 10 | 2.7 |
| APH | 07 | 1.9 |
| Failed induction | 06 | 1.6 |
| Cord prolapse | 06 | 1.6 |
| Malpresentation | 03 | 0.8 |
| Macosomia | 02 | 0.5 |
| IVF pregnancy | 01 | 0.3 |
| TOTAL | 373 | |

**Table 3. Global C-section rates**

| | | | |
|---|---|---|---|
| United Nations data | Italy | 2015 | 36.1 |
| | China | 2015 | 47 |
| | USA | 2015 | 32.2 |
| | Sri Lanka | 2015 | 30.5 |
| | Brazil | 2015 | 55.6 |
| | World(Total) | 1990-2014 | 18.6 |

**Table 4. NFHS 4 data on caesarean rates in India**

| Area | Births delivered by C-section (NFHS 2014-15) |
|---|---|
| Maharashtra | 58 |
| Bihar | 40.1 |
| Tamil Nadu | 31.4 |
| All India | 20.1 |

**Table 5. Comparison of C-section rates in various studies**

| Study | Study population | Study period | Caesarean section rate% |
|---|---|---|---|
| Present study | Jabalpur, Madhya Pradesh | Jan 2015-dec 2016 | 45.5 |
| G Singh et al | Agroha,Haryana | Jan 2012-Dec 2012 | 51.1 |
| Meetagupta et al | Jaipur,Rajasthan | Jan 2016-Dec 2016 | 32.46 |
| Preetkamal et al | Vallah,Amritsar, Punjab | May 2015-April 2016 | 33.20 |
| Shiba M et al | Mumbai, Maharashtra | Jan 2011-Dec 2011 | 28.9 |
| Liu et al | Mainland,China, Mukticentre | Jan 2011-Dec 2011 | 54.90 |
| Barber E et al | USA | Jan 2003-Dec 2009 | 36.5 |

**Discussion:**

There has been rise in rate of caesarean section in both developed and developing countries. The rising rate of caesarean section has become a concern for both public health sector facilities as well as government. The rising trend can be attributed to various factors.

The present study has been conducted in a non commercial government health facility so commercialization factor is ruled out. Cases attended to were referred from primary health centers and Community health centers, private hospitals and civil hospitals. Annual rate of caesarean section in this hospital have been tabulated in table 1and LSCS rates have been 45.5%.out of which 41.8% have been patients with repeat section which in itself has been responsible for major portion of cases as can be seen in table 2,second most common indication being fetal distress at 13.7%.Having compared to international statistics global caesarean section rates in the year 2015 have ranged between 18.6% to 55.6% with highest being from Brazil at 55.6%, followed by china at 47% which is as tabulated in table 3[9].

NFHS data of India in there statistics for the year 2014-15 have shown an all India caesarean section rate at 20.1% with highest rates from Maharashtra at 58% and Bihar at 40.1%(table 4)with no mention of fetal and maternal mortality, which is important decision making factor.

Since 1985, According to international health care community (WHO) the ideal rate for caesarean sections is in between 10% and 15%. According to a worldwide analysis conducted by Ana pilar Betran et al the global rate of caesarean section was found to be 18.6%(1990-2014). The highest rates of CS are found in Latin America and the Caribbean (40.5%) and South America is the sub region with the highest average CS rates in the world (42.9%)[9]. In a multicentre study in china by liu et al in 2011 caesarean section rates were found at 54.90% [10]. Barber et al in their study in USA from 2003 to 2009 had caesarean section rates at 36.5 % [11]. The Indian studies by G Singh et al of Haryana done in 2012 put the c section rates at 51.1% [12], meenagupta et al from Jaipur in 2016 in their study had caesarean section rate at 32.46% [13].

In another study Preetkamal et al in Amritsar between 2015- 16 had a caesarean section rate of 33.20%[14].

Currently the caesarean birth rates in many developed and developing countries far exceed the tolerable limit specified by the WHO that is 15% indicating a rising trend.[15]. In the present study the rate of increased percentage of c-section rate among mothers at 45.5% was marginally higher than average worldwide and Indian data; however various centers in India and abroad in various studies and statistics have reported higher percentage of c section. When compared with over all worldwide rates at an average c sec rates is around 30%. The overall rate of caesarean section in India is about 36.4% out of which in the public sector it is 25.3% and 48.1% in private sector(NFHS 2015) however there is no consideration of the final fetal and maternal outcome which is an extremely important component towards decision making specially in non government set ups where accountability is more clearly defined and pursued. In our study group no maternal mortality was recorded and out of 828 new borns there were 5 mortalities which amounts to 0.6 %[Table 1]. Most of the cases received were with complications referred from peripheral hospitals to tertiary care centre and therefore higher rates of c section,, it is also considered that there is an increasing demand from women even in developing countries for Caesarean section to avoid pain with the increasing economic and educational advancement. A trial for vaginal birth after a previous CS (VBAC) is considered to have increased risk of complications and is therefore almost taken as an indication for repeat section. It is seen that there is currently less enthusiasm for VBAC by trial of scar or of labor. It is evident that whereas CS is doctor friendly, VBAC is not. The rate of VBAC in USA is down from 17% to 11%. The practice of trial of labor for prev. caesarean section is decreasing especially in non academic setup like the one in which this study has been carried out due to tedious requirement of monitoring team which is not available most of the times therefore indications like doubtful scar strength, late referrals, and zero error syndrome followed by obstetricians takes precedence and therefore more elective sections in this group.

According to reproductive ecology some other factors influencing decision for operative delivery are increased rates of infertility, modern artificial reproductive techniques, precious pregnancy, increased risk factors, multiple pregnancy [8]. Besides this other factors are, changing scenario of rapid socio-economic development, medicalisation of women's health, altered family structure, changing role of women in society, biological urge to have good off-springs. There is an increasing demand from women even in developing countries for Caesarean section due to fear complex. The benefits most often attributed to delivery by caesarean section were reduction of pain and convenience for family and also the health professionals.

Recent studies suggest that women and their providers prefer medicalised births, due to a fear of potential risks and increased comfort with technology [16]. From obstetrician view nobody will accept minor degrees of risks to have good outcome, therefore trends of caesarean section is increasing. It is a defensive medicine, to reduce perception of risk on mother, on doctor and on hospital administrators. [17].

Due to Psychological adjustment to small families, they have fear complex about the risk of fetal outcome, and chances for the survival of newborn, growth, long term health [8].

**Conclusion:**

The overall study brings out the current trends in increasing incidence of caesarean section delivery with focus on practical reasons leading to this rising trend. An empirical and conceptual exploration of how delivery decisions take place between the professional medical world and society has been brought out. It is evident that there has been a change in the outlook towards caesarean section both within the

society as well as from medical professionals. However, it is not merely the medical profession but the society, at large, who are responsible for the rapid increase in c-section currently. Often only the medical profession's motive behind increasing caesarean section is highlighted. This study has tried to focus on other reasons like rapid socio-economic changes and the outlook towards surgical intervention by the patient, families and obstetrician, clientele's biological urge to have better off springs, decision making choice of the women, families and society along with the pressure of successful outcome for mother and child by the obstetrician are all responsible for the current high incidence of caesarean section. Rising Caesarean section rate may be way of finding a middle ground between social pressures and having a successful maternal and fetal outcome and birth-risk between vigilance and towards the disaster waiting to happen. Zero error syndrome approach followed by obstetricians along with patients request for elective repeat caesarean section takes precedence and therefore more elective sections at large and increasing trend of operative deliveries.

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