

RISING CESAREAN SECTIONS: CAUSES & CONCERNS

TOWARDS A PUBLIC HEALTH AGENDA FOR QUALITY & SAFETY OF MATERNITY SERVICES

A. The Problem

A Cesarean section (C-section/CS) is an operation to deliver a baby through the abdominal route, instead of the natural vaginal route. When medically indicated, CS saves lives and enhances perinatal outcome in high-risk pregnancies. In the absence of medical indications, the operative and consequential risks of C-sections may outweigh benefits. Hence, overuse of C-section is cause for concern.

B. What is the Right Number of Cesarean Sections?

In 1985, an international consultation of experts was organized at Fortaleza, Brazil, by the regional offices of WHO for Europe and the Americas. It was noted that several countries with low perinatal mortality, had CSR of less than 10 percent. Accordingly, the conference recommended that there is no justification for any geographic region to have more than 10-15 percent cesarean births (WHO, 1985).

Subsequent reviews of empirical evidence reinforced that there is no apparent benefit to maternal/perinatal mortality reduction, for CSR above 15 percent (Chalmers, 1992, Joffe et al, 1994). The desirability of fixing a ceiling on CSR, without reference to case-mix, maternal preferences and practice environment, has been questioned (Lancet, 1997; Cyr, 2006). Recently, based on review of available evidence, the WHO has stated that, at population levels, caesarean section rates higher than 10 percent are not associated with reductions in maternal and newborn mortality rates (WHO et al, 2015). However, several country efforts to reverse increasing CSR have fixed higher norms at around 20 percent. For eg. 20 percent in Mexico (Gonzalez-Perez et al, 2001) and 21.5 percent in USA (ACOG, 2000).

C-section rates (CSR) are rising all around the world. By about 2005, the average global CSR was estimated at 15 percent (Betran et al, 2007). The CSR for Africa was 3.5 percent indicating lack of adequate emergency obstetric care (EmOC) in most countries of the region. On the other hand, CSRs were very high in many developed countries and Latin America. For example; 39.1 percent in Mexico, 36.3 percent in Brazil, 36 percent in Italy, 30.2 percent in Portugal, and 40.5 percent in China. In India, the national average CSR was about 9 percent during 2007-08 (Shabnam, 2014). But several states had very high CSR. For example; 32 percent in Kerala, 30 percent in

pre-bifurcation Andhra Pradesh, and 23 percent in Tamil Nadu. The latest Mother & Child Tracking System (MCTS) data for 2013-14 suggests that the CSR was 42 percent in AP and 60 percent in Telangana.

C. Medical Indications for C-Section

Some of the medical indications for C-section include: (a) mal-presentations, which is the medical term for when the top of the fetal head is not positioned at the start of the birth canal, (b) placental abnormalities such as placenta previa (when the placenta covers part or all of the cervical os), morbidly adherent placenta, abrupt separation of placenta that carry the risk of severe antepartum hemorrhage, (c) absolute and relative cephalo-pelvic disproportion, (d) hypertensive disorders of pregnancy, (e) risk of mother-to-child transmission of multiple maternal infections, (f) older maternal age, (g) previous C-section, (h) dystocia (difficulty during labor) and failure of normal labour to progress, (i) critical fetal distress during the course of normal labour, (j) prolapsed cord, etc. Severe antepartum hemorrhages usually due to placenta previa or abruptio, transverse & frontal presentations, major cephalo-pelvic disproportion where the child is alive, and uterine rupture are considered absolute maternal indications for cesarean section; the remaining indications are relative medical indications. First time cesareans are called primary and subsequent ones are called repeat cesareans. When planned and performed before onset of labor (prepartum) the intervention is called elective, otherwise emergency (intrapartum).

D. Health Consequences of the Increasing Cesarean Section Rate

The primary rationale behind most of the medical indications is to improve perinatal outcome. Reductions in perinatal mortality was observed around the same time period as increases in CSR. This lead some to believe in a treatment effect between the two. However, closer examination does not support such a hypothesis. Several studies have shown that higher CSR does not contribute to any reduction in perinatal mortality. Where the baseline CSR is less than 10 percent, rising CSR may be associated with reductions in maternal and neonatal mortality. But there is no such association for countries with a baseline CSR of more than 10 percent.

Despite advancements in anesthesia and surgery, the risk of maternal mortality and morbidity is higher for cesareans compared with vaginal delivery. Maternal deaths associated with cesareans are mostly due to complications of anesthesia, puerperal infection or thromboembolism. The risk of puerperal fever and wound infections is higher among elective cesareans when compared with spontaneous vaginal delivery. Some morbidities that are not evident after primary cesareans, manifest in future pregnancies. The incidence of abnormal placentation, risk of uterine rupture and the need for gravid hysterectomy increases with each cesarean delivery.

Neonatal mortality is usually higher in elective cesarean groups compared with planned vaginal delivery groups. Of greatest concern is the risk of respiratory morbidity among cesarean babies, which is especially prominent in babies born before term. Although all clinical guidelines advise against elective cesareans before 39 weeks gestation, in practice about one third to half of elective cesareans happen before this time. As such, elective cesareans may inadvertently cause iatrogenic prematurity, as methods of estimating gestational age are imprecise. These premature cesareans increase the incidence of neonatal respiratory morbidity requiring NICU admission and may have long term adverse effects on the baby.

E. Maternal Request for Cesarean Delivery

Many obstetricians conjecture that maternal requests may be driving the rapid rise in cesareans, but actual prevalence of maternal requests for cesarean is low and does not explain the rising trend of cesareans. More important factors must be at play.

For those maternal requests that are received, fear of vaginal delivery, perceived benefits and scheduling convenience are leading factors. Requests for cesarean delivery that arise out of fear of vaginal delivery (tocophobia) can be managed through ongoing psychosocial support and effective pain management. Evidence on perceived benefits of CS, such as lowered risk of incontinence or preservation of sexual function, is equivocal or weak. The marginal benefit from reduced risk of urinary incontinence, early resumption of sexual function or convenient scheduling does not outweigh the adverse maternal and neonatal outcomes of medically un-indicated cesarean section. The International Federation of Gynecology and Obstetrics (FIGO, 2012) has observed that normal vaginal delivery is safer in the short and long term for both mother and child. Hence, performing cesarean for non-medical reasons is ethically not justified.

F. Health System Characteristics and Cesarean Section Rates

Global experience shows that the following structural and systemic factors affect quality of obstetric care and CSR.

- a. **Ownership Profile of Hospital:** Small size maternity units, solo obstetrician clinics and nursing homes are usually associated with high cesarean rates. Private for-profit hospitals tend to do more cesareans compared with nonprofit and public hospitals.
- b. **Financing of Maternity Services:** Generous sources of payment have been associated with increased utilization of C-sections. Large fee differentials between vaginal delivery and cesareans are correlated with higher CSR.
- c. **Organization of Obstetric Care:** Midwife-led continuity of care, physician-led models with more midwives, and enhanced role for midwives, improve quality and lower CSR.
- d. **Professional Environment & Obstetricians' Practice Styles:** Several studies have reported variations in CSR among obstetricians and maternity units that cannot be explained by differences in obstetric risk profile, source of payment, or medico-legal environment.

G. Experiences from Interventions and Strategies to Reduce CSR

Several professional bodies and health care authorities have deliberated on contemporary evidence-base and have adopted practice guidelines for appropriate obstetric care. But guidelines alone do not alter behavior without complementary systemic interventions. Experiences with various systemic interventions to lower CSR are listed below.

- a. **Aligning Maternity-care Fees to Discourage Unnecessary Cesarean Sections:** Various kinds of fee equalisation have yielded equivocal results. However, realignment of financial incentives as a part of multifaceted interventions such as continuing education, audit & feedback, appear to have some promise.
- b. **Integrating and Strengthening Midwife-led Maternity Services:** Licensed midwives usually practice in hospitals with admitting privileges and authority to prescribe relevant medicines in Australia, Denmark, France, Sweden. In the Netherlands, New Zealand, and the UK, midwives may practice independently with access to hospitals. All of these countries have low maternal mortality at <10 / 100,000 live births.
- c. **Labor Companions for Psychosocial Support:** Continuous labor support by dais and doulas improves birth outcomes and reduces operative interventions.

Labor companions who are neither hospital employees nor part of the woman's social network are most effective in improving the delivery experience and reducing the need for cesarean sections.

d. Institutional Programs for Appropriate Obstetric

Practices: Hospital or department level programs to implement practice guidelines have usually worked to reduce CSR. Strong departmental leadership, continuous scrutiny and outcome feedback are important.

Recognition, praise, public accord in professional circles and private admonishments are essential for audit and feedback systems to be effective.

e. Scaled-up Multi-institution Programs to Reduce

Unnecessary Cesareans: Several experiences of multi-institution interventions show that collaboration with professional champions and opinion leaders does help increase compliance with practice guidelines.

Managerial and professional commitment, with complementary changes in both medical and nursing practices, are keys to success.

H. Call to Action for Improvements in Quality of Maternity Services

Women's & children's health must be the core motivator of all policies regarding appropriate mode of birth. Second order considerations, such as scarcity of financial resources or maternal preferences, ought to be balanced without compromising maternal and child health outcomes.

Unnecessary cesareans is not an isolated question. The phenomenon of rising cesareans is intricately embedded with quality and safety of maternity care services. Early elective inductions are as much a problem as are early elective cesareans. Programs and policies to improve the quality of maternity services, should result in appropriate levels of spontaneous, induced or assisted vaginal deliveries and cesarean sections. Reductions in unnecessary cesarean sections should be viewed as an indicator of the quality of maternity services rather than a goal in itself. The following interventions are proposed to improve the availability and quality of maternity services, and thereby contribute to reductions in unnecessary cesareans.

1. More Maternity & Child Health (MCH) Hospitals in the

Public Sector: To develop a backbone of medium volume maternity care units, build separate MCH Hospitals in District Headquarters, and other administrative centres such as Revenue Divisional and ITDA Headquarters, in large towns with a population of more than 50,000. This would be in addition to the MCH services in existing District and Area Hospitals.

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2. Better Midwifery and More Midwives:

Unfortunately, various national programs and policies have successively diluted midwifery training and gradually obliterated midwifery models of care (Mavalankar et al, 2011; Dasgupta & Prasad, 2013). Experience shows that integrating midwives into maternity care services improves birth outcomes and reduces cesareans. Hence, maternity unit staff norms should be revised to increase the number of midwives. Admission privileges and prescription authority should be conferred to midwives for maternity and related services. Mid-career midwifery courses for adroit ANMs and BSc-Midwifery should be developed and introduced. Minimum midwife staff criteria for private maternity units should be required.

3. Enabling Continuous Labor Support by Dais and Doulas:

Introduce a doula training support system and help maternity units to deliver training in continuous labor support and maintain quality. Potential candidates would be ASHAs, traditional dais and any other woman interested to support women in labor. The dais and doulas are not to be appointed by maternity units. Instead, mothers should have freedom to hire them from any source, and not be restricted to a hospital's panel of dais and doula. ASHAs may also be incentivized to provide continuous labor support.

4. Waiting Wards: Build and maintain waiting wards for low obstetric risk women reporting before actual onset of labor or in false labor. Allow for easy two way transfers between waiting and labor wards, depending on actual onset of labor.

5. Voluntary Collaborative Birth Outcome Initiatives:

Institute collaborative birth outcome initiatives to accelerate improvements in quality of maternity services, adoption of evidence-based midwifery and obstetric care, enhance birth outcomes and reduce unnecessary operative interventions, such as cesarean sections.

6. Information, Education & Communication (IEC)

Campaign: A strong focused IEC campaign to educate potential parents about the advantages of (a) natural childbirth for neonatal/maternal health, (b) health risks of un-necessary cesarean sections, (c) advantages of a trained dai or doula, in addition to trained midwife and/or obstetrician, (d) advantages of waiting for spontaneous onset of labour instead of inducing labor (e) the risk of respiratory morbidity/prematurity associated with elective cesarean before onset of labor and (f) the importance of 39 weeks of gestation and the absolute minimum of 37 weeks of gestation before considering any cesarean, except in cases where the mother's life is at risk.

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