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Trends of Cesarean Section at Tertiary care Hospital in India over 10 years

KEYWORDS

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ABSTRACT *Introduction : Cesarean section is the 2nd commonest surgery performed on women in India after Tubectomy Operation.Cesarean section rate is increasing across the world. WHO endorsed the principle that there is no region in the world where a population-based caesarean section rate exceeding 15% of all live-births is justified. However in most of the tertiary health care centres the rate of cesarean section has reached more than 30 %. It has been stated that increase in the cesarean section in low risk women is associated with more maternal morbidity & mortality. In India giving birth in an auspicious day are driving the women to go for a caesarean section (Mishra, 2002). We have analyzed cesarean section trend & its determinants at Bharati Hospital, Pune (Tertiary Care Centre) over the last 10 years . Objective : To study the trend of cesarean section over the last decade & its determinant at tertiary care hospital . Design : Retrospective analysis of all the deliveries from January 2000 till 2012. Material & Methods : Bharati Hospital is a Tertiary Care Hospital in Pune, India which cater to more than 2 Million Population. We have done retrospective analysis of vaginal deliveries & cesarean section over 10 years along with major determinants of it. Results : Rate of cesarean section has risen from 23 % in 2000 to almost 49 % in 2011 . Fetal distress & CPD were the commonest indication with which the procedure is performed. Over the years the incidence of various indications requiring surgery remained constant except Pregnancy Induced Hypertension. Other common indication were Malpresentations, Arrest of dilation & descent, fetal growth restriction & oligohydramnios . Despite increased rate of cesarean section neonatal morbidity & mortality is constant throughout the years . Conclusion : Despite of rising cesarean section rates neonatal morbidity & mortality remains the same over the years which is otherwise unacceptable. Rising litigation, insurance , preterm cesarean section to salvage the premature babies in the era of modern NICU facility are leading to the era of more operative deliveries. India as a developing country could not afford to have cesarean section rates comparable to the western countries leading to a economic strain on the lower middle class population which constitutes 80% of the total.*

Introduction :

What has already been described as the "caesarean birth epidemic" (1) may now well be considered a true pandemic emerging issue in mother-child healthcare. A recent leading editorial stressed that the rise in caesarean section is now a matter that deserves international attention (Lancet 2000;356:1697), since the trend is no longer confined to western industrialized countries. Cesarean section is the 2nd commonest surgery performed on women in India after Tubectomy Operation In India giving birth in an auspicious day are driving the women to go for a caesarean section (Mishra, 2002).

Noteworthy in this respect is the study by Belizan et al. reporting on caesarean section rates in 19 Latin American countries, revealing caesarean section rates ranging from 16.8% up to 40% in 12 of these countries (3). Other reports from developing countries, albeit scarce, are often based on vital statistics in providing crude population-based caesarean birth rates. However, caesarean rates tend to vary widely with clinical and sociodemographic factors of patients and attitudes of health providers. Hence, it has been suggested that national caesarean delivery rates do not reflect what is happening locally (4), supporting the trend toward monitoring rates at the level of individual hospital or physician (5). The use of caesarean rate as a clinical indicator for healthcare quality has been the subject of an ongoing debate (6-12), albeit much of the controversy has focused on high caesarean rates in the USA and the UK.

Yet from a public-health perspective, WHO (13) endorsed the principle that there is no region in the world where a population-based caesarean section rate exceeding 15% of all live-births is justified. Even when the rate put forward by WHO was set as an arbitrary upper limit, it is an interesting concept in itself, as it may be considered a 'threshold', beyond which the benefits of performing caesarean section are no longer outweighing short- and long-term morbidity and mortality associated with the actual procedure.

An assessment of the patterns and trends over time in caesarean section rates and maternal-perinatal mortality rates might be useful to analyze the past, current and future caesarean section scenario, which may help in advising healthcare providers about optimal caesarean section rates.

An assessment of pattern & trends of cesarean section at Bharati Hospital is done as a retrospective analysis over 10 years . This may help us to focus on the area or the commonest indications of cesarean section so that we try to curtail the rising rates of cesarean section.

Material & Methods :

Bharati Hospital is a private teaching multispecialty hospital in Pune,Maharstra.India. Hospital has 120 beds for the Obstetrics & Gynecology. Hospital has a good Neonatal ICU backup which is equipped with 25 beds along with 10 ventilators & state of art modern equipments. Labour room has all total 12 beds with all the equipments for the intrapartum & antepartum fetal monitoring. Annual delivery at the hospital varies from 1800 to 2500. As a tertiary care centre , 10 % patients are referred from small nursing homes in vicinity.

Almost 90 % patients getting delivered at the hospital are registered & thoroughly worked out during the antenatal period. Main catchment area for the hospital is entire Pune City along with Primary Health Centres & Rural Hospitals in Bhor,Velhe & Nasrapur area.

Hospital caters to the needs of upper middle & rich population . Literacy rate amongst the women attending the antenatal OPD is almost 85 % with majority having secondary & higher education.We have done retrospective analysis of all cesarean section & vaginal deliveries over 11 years from 2000 up to 2011 . Every delivery is duly is duly entered in the labour register maintained at Labour Room over years. We have also collected the data of Indications of cesarean section & tabulated all the data.

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Results :
In the year 2000 the rate of cesarean section was 22 % when fetal distress & CPD were the commonest indications for the procedure. Year 2011 has 51 % rate of cesarean section which is very significant (Figure 1). Over the years there is discernable & alarming rise in the incidence of cesarean section .

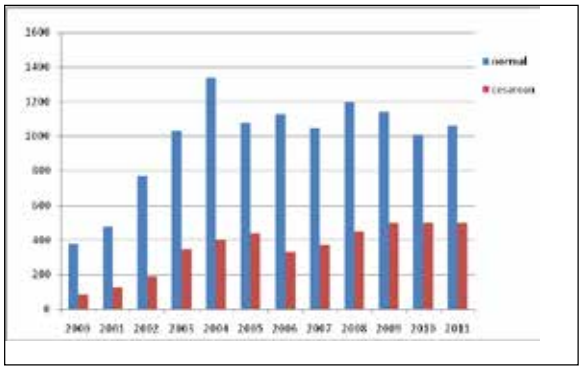

Figure 1.

Fetal distress (Figure 2) along with CPD were the commonest indications of cesarean section. With the availability of early predictors of fetal wellbeing such as NST Machines , Fetal Dopplers , Biophysical profiles & the Fetal scalp blood pH estimations over diagnosis of fetal distress along with increased dependency on the machines may be one factor for the increased incidence.

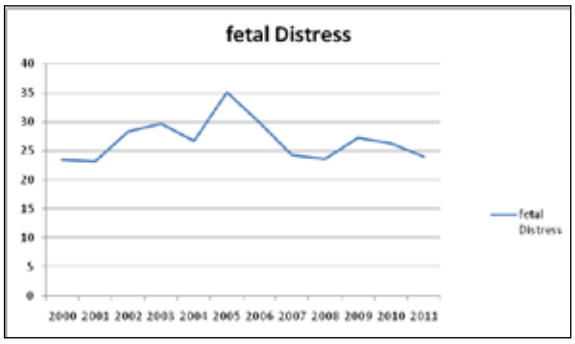

Figure 2. Number of patients requiring cesarean section due to fetal distress over the years.

In the year 2000 the cesarean due to fetal distress contributes approximately 20 % of total procedures , in 2011 it contributes to almost 35 %.

Cesarean section due to malpresentation is the same over the years(Figure 3) & it contributes to 12 % of total procedures.

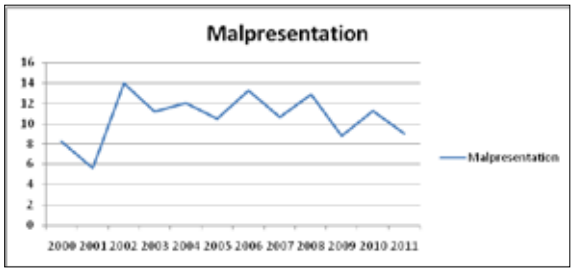

Figure 3. Number of patients requiring cesarean section due to malpresentation of the fetus.
CPD is the second common indication of cesarean section at Bharati Hospital & there is small but discernable rise in the cephalopelvic disproportion from 21% (of total procedure) to 24-26 %.(Figure 4) Good nutritional supplementation & increased awareness of health may be one factor behind rising incidence of Cephalopelvic disproportion in previously undernourished women.

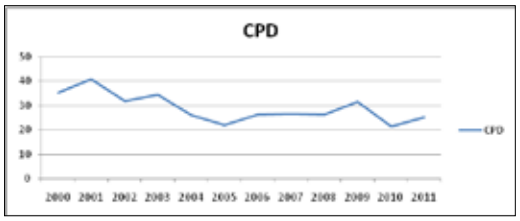

Figure 4.

Amniotic fluid disorders particularly oligohydromnios culminating into cesarean section are certainly on rise where the incidence in 2000 was 4% of total procedures (Figure 5). In 2011 only oligohydramnios contributes to 8% of total indications of cesarean section.

Figure 5.

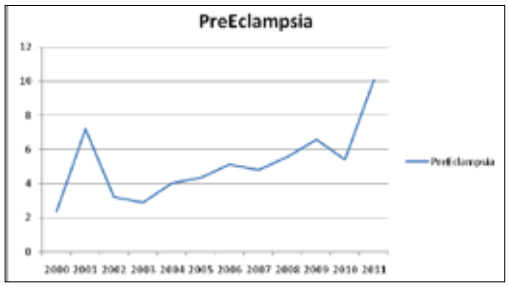

Figure 6.
Pregnancy Induced Hypertension as a primary indication for cesarean section was only 2% in 2000 which has increased to 7 % of total indications(Figure 6). Rising Obesity amongst the women can be considered one of the factors leading to Hypertension during the pregnancy.

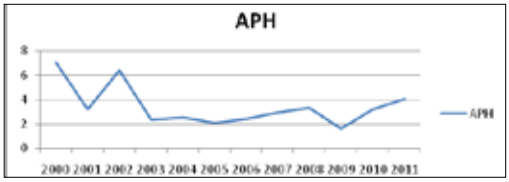

Figure 7.

Incidence of APH ie.Placenta Praevia & Abruptio Placenta (Figure7) fairly remained constant throughout the years which contributes 3-4% of total cesarean sections.

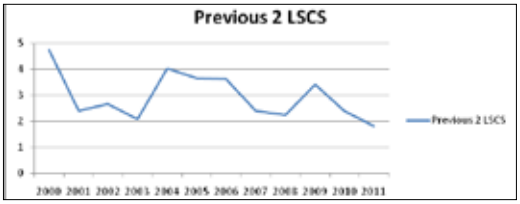

Figure 8.

Previous 2 cesarean patients recquiring 3rd one were surprisingly constant throughout the years (Figure 8)though the incidence of cesarean section increased alarmingly high.

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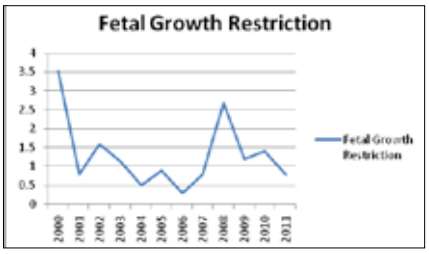

Figure 9.
Fetal growth restriction requiring cesarean section remained < 1 % throughout the years(Figure 9) . Early diagnosis & better predictors such as color Doppler analysis along with revolution in the treatment such as supplementation of Arginine granules & high protein certainly changed the outlook of treatment. Though the incidence of Pregnancy Induced Hypertension is on rise in antenatal mothers visiting antenatal OPD but the fetal growth restriction amongst them is reduced.

Discussion :
At the Bharati Hospital, the caesarean section rate increased from 19 % to 50 % in 10 years, but without any improvement in overall perinatal outcome beyond a caesarean section rate of 10%. The figures provided are hospital-based and do not necessarily reflect what is happening in the community. The percentage of hospital deliveries in Pune is unknown, and the people attending the Bharati Hospital are probably not a representative cross-section of the overall population. Hence, comparison with settings of other countries is difficult. However the strength of these data rests on the extended period of time with consistent data collection on large numbers of women giving birth at the same place. Weaknesses include potential selection biases because of more middle-class women attending the Bharati Hospital , calculation errors because of missing denominators, and the different registration methods used over time. Nevertheless, we are reasonably confident that the figures on their own are interesting and concur with trends in other countries.

Of all the indications for cesarean section Cephalopelvic Disproportions & Fetal distress stand out which share almost 50 % of the total procedure. However over the years their percentile remains constant . Other more common indications were Oligohydromnios , Pre-eclampsia , Antepartum Haemorrhage , arrest of dilation & descent. Malpresentations recquiring cesarean section fairly remains constant which share 8-10% of total cesarean section. Incidence of pre-eclampsia recquiring cesarean section certainly on rise & shown consistent increment from 2.5 % in 2000 to almost 10% in 2011. Surprisingly patients with previous 2 LSCS recquiring cesarean section for the third time remains constant through the years though there is increase in the total cesarean section rate.

Other less common indications were fetal growth restriction, scar dehiscence , arrest of dilation/descent & failure of induction. Fetal growth restriction in patients recquiring LSCS have been seen to be reduced from 3-4 % on 1990s to 0.3-0.8% in 2012.

Overall study shows constant progression towards increase in cesarean section rate per vaginal deliveries but the neonatal mortality & neonatal morbidity (NICU Admissions) remained almost the same over the years which is not expected.

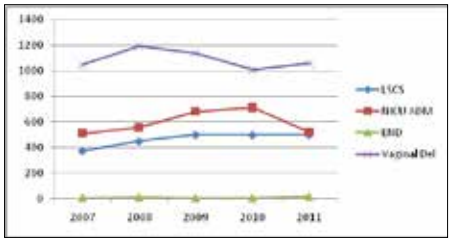

Figure 10.

We have measured neonatal morbidity in terms of NICU admissions & it has been found that increase in cesarean section rate has not cut down the neonatal morbidity & hence increase in LSCS rate could not be justified.

It is concluded that the caesarian section rate has increased substantially over the last decade decades in the Bharat Hospital . No improvements, either in maternal or perinatal outcome, have been observed with caesarean section rates over 10%. (Figure 10) On the contrary, the PNMR seems to increase as a consequence of trying to improve the perinatal outcome of the very low-birth-weight children by a liberal caesarean section policy.

Obstetrical care in the light of increasing prosperity is characterized by a tendency toward a greater patient involvement in clinical decision-making (15). Sachs et al., for instance, stated that "a couple's expectation of a perfect baby, as well as a women's previous experience of difficult labor, undoubtedly also plays a part in the decision to perform a cesarean delivery" (6).

Second, mode of reimbursement and type of medical insurance have been quite consistently found to affect caesarean rates, in the direction of patients with better financial means and of physicians getting larger fees for caesarean than vaginal deliveries, leading to a higher performance of operative birth. We believe that both the factors (nonmedical) may have considerably contributed to the observed trend at the Bharati Hospital , although further investigation is desirable to prove this assumption. The institution being a private nursing home with patients paying an additional fee to senior medical staff may have enhanced this tendency, but potential bias is less likely to have confounded the observed trend in the steep rise over the last 10-year study period.

In discussing the ethics of medically elective cesareans, the American College of Obstetricians and Gynecologists states , in the absence of significant data on the risks and benefits of cesarean delivery, if the physician believes that cesarean delivery promotes the overall health and welfare of the woman and her fetus more than vaginal birth, he or she is ethically justified in performing a cesarean delivery.

In contrast, the International Federation of Gynecology and Obstetrics states , at present, because hard evidence of net benefit does not exist, performing cesarean section for nonmedical reasons is not ethically justified. In 2004, Queenan noted that the underlying "question is not the ethics of patient choice, but lack of scientific proof of risks and benefits." Medically elective cesarean delivery (compared with thecombination of planned vaginal and unplanned cesarean delivery) was associated with:

(1) a decreased risk for maternal hemorrhage;
(2) an increased risk for respiratory problems for infants;
(3) greater complications in subsequent pregnancies, including uterine rupture and placental implantation problems, and
(4) longer maternal hospital stays [14].

Although using different methodologies and not all using the intention to- treat framework, several other recent studies have examined maternal or neonatal mortality in relation to method of delivery. Villar and coworkers , in a Latin American study, found, for infants in cephalic presentations, an odds ratio of neonatal mortality for cesarean delivery of 1.9 (1.6–2.3) compared with vaginal deliveries. Betran and colleagues , in a global study of the relationship between method of delivery and maternal and neonatal mortality, found that for countries with overall cesarean rates below 15%, higher cesarean rates were correlated with lower maternal mortality.

For countries with national cesarean rates above 15%, however "higher cesarean rates are predominantly correlated with higher maternal mortality. A similar pattern is found for infant and neonatal mortality." These findings were cor-

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roborated by Villar and coworkers for Latin America . Other recent studies found increased risks for maternal mortality for low-risk women delivered by cesarean , whereas an additional study found substantial serious maternal morbidity associated with cesarean section but no significant difference in maternal mortality .

Conclusion :

Despite of rising cesarean section rates, neonatal morbidity & mortality remains the same over the years which is otherwise unacceptable. Rising litigation, insurance , preterm cesarean section to salvage the premature babies in the era of modern NICU facility & doctors anxiety are leading to the era of more operative deliveries. India as a developing country could not afford to have cesarean section rates comparable to the western countries leading to a economic strain on the lower middle class population which constitutes 80% of the total.

REFERENCE 1. Porreco RP, Thorp JA. The cesarean birth epidemic: trends, causes, and solutions. Am J Obstet Gynecol 1996;175:369-74. | | 2. Caesarean section on the rise (editorial). Lancet 2000;356:1697. | | | 3. Belizan JM, Althabe F, Barros FC, Alexander S. Rates and implications of caesarean section in Latin America: ecological study. Br Med J 1999;319: 1397-400. | | 4. Richman VV. Lack of local reflection of national changes in cesarean rates: the Canadian experience.Am J Obstet Gynecol 1999;180:393-5. | | 5. Gregory KD. Monitoring, risk adjustment and strategies to decrease cesarean rates. Curr Opin Obstet Gynecol 2000;12:481-6. | | 6. Sachs BP, Kobelin C, Castro MA, Frigoletto F. The risks of lowering the cesarean-delivery rate. N Engl J Med 1999;340:54-7. | | 7. DeMott RK, Sandmire HF. The risks of lowering the cesarean-delivery rate (letter). N Engl J Med 1999;341:53. | | 8. Halpern SH, Leighton BL. The risks of loweringthe cesarean-delivery rate. N Engl J Med 1999;341:54-7. | | 9. DeJoy S, O'Grady JP, Burkman RT. The risks of lowering the cesarean-delivery rate. N Engl J Med 1999;341:53-54 [comment appears in: N Engl J Med 1999;340:54-7]. | | 10. Sirio CA. The risks of lowering the cesarean delivery rate. N Engl J Med 1999;341:54 (comment appears in: N Engl J Med 1999;340:54-7). | | 11. Satcher D. The risks of lowering the cesareandelivery rate. N Engl J Med 1999;341:53-55[comment appears in: N Engl J Med 1999;340: 54-7]. | | 12. Sachs BP, Kobelin C, Castro MA, Frigoletto F. The risks of lowering the cesarean-delivery rate. N Engl J Med 1999;341:54-7 | | 13. Wor ld Health Organisation. Appropriate technology for birth. Lancet 1985;2:436-7. | | 14. NIH State-of-the-Science Conference statement on cesarean delivery on maternal request.NIH Consens State Sci statements. 2006;23(1):1–29 | | 15. Irvine LM. Patient education is way to influence maternal requests for caesarean section | (letter). Br Med J 1999;319:190.