ORIGINAL RESEARCH PAPER

Gynaecology

EVALUATION OF PRIMARY CESAREAN SECTION IN A TERTIARY CARE TEACHING CENTRE ON THE BASIS OF MODIFIED ROBSON'S 10 GROUP CLASSIFICATION – A PROSPECTIVE OBSERVATIONAL STUDY

KEY WORDS: Caesarean Section, Robsons Criteria, Indications

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ABSTRACT

High Caesarean birth rates are of international public health concern. Dr Michael Robson of National Maternity Hospital, Dublin, Ireland, proposed a new classification, the Robson Ten-Group. The aim of the study was to evaluate the indications of primary caesarean sections and classify them according to modified Robson's 10 group. This clinical study was conducted at the department of Obstetrics and Gynaecology, JMMC&RI for a period of eighteen months. All women, who delivered during this period by primary section were included.

RESULTS Group 2 was the commonest (45.2% patients) followed by group 10. The commonest indication for CD was non-progression of labour and the next indication was non-reactive cardiogram (commonest indication in group 10 also).Induction to delivery interval overall was between 16 – 20 hrs (35.4%). Following CD 56.8% patients had no maternal complications but of those who had, baby sake (28.6%) was the commonest.

BACKGROUND

High caesarean birth rates are an issue of international public health concern. The WHO suggests the ideal section rates as 5%-15%. Over the past 15 years there has been a marked rise in the rate of caesarean delivery in United states from 20%(1996) to 32.8% in 2012,a more than 60% increase.The same rising trend is seen in our country. Analysing CS rates in different countries, including primary vs. repeat CS and potential reasons of these, provide important insights into the solution for reducing the overall CS rate. Dr Michael Robson of National Maternity Hospital, Dublin, Ireland, proposed a new classification system, the Robson Ten-Group Classification System to allow critical analysis according to characteristics of pregnancy.

Need and significance of the study - CD increases complications like postpartum haemorrhage, postpartum infections, venous thromboembolism and mortality[5].The downstream risks associated with a first Caesarean include future Caesareans, as well as abnormal placentation's, placenta accreta, hysterectomy, and maternal and foetal mortality. Increasing rates of perinatal complications have been observed as the CD rate has increased, such as a 4-fold increase in the frequency of the placenta accreta over the past 2-3 decades. CD is a frequent, easily obtainable and meaningful event in obstetrics that has frequently been used as a quality indicator. The rationale for incorporating CD into the early obstetric quality metrics is trifold.

Objectives of the study - To evaluate the indications of primary caesarean sections along with immediate maternal complications (intra and postpartum) and distribution of primary Caesarean cases in the modified Robson's 10 group's classification and to identify the most commonest group.

Study design - Prospective, Comparative, Analytical study.

Study population - All women who delivered by primary CD during the period of study at our institution.

Study setting - Jubilee Mission Medical College & Research Institute, Thrissur, Kerala, India.

Duration of study - One year and six months

Inclusion criteria - Women who have undergone primary Caesarean section (both primi and multigravida)

Modified Robson criteria -

1. Nullipara, singleton cephalic, > 37 weeks, spontaneous labour
2. Nullipara, singleton cephalic, > 37 weeks
   A: Induced
   B: Caesarean section before labour
3. Multipara, singleton cephalic, > 37 weeks, spontaneous labour
4. Multipara, singleton cephalic, > 37 weeks
   A: Induced
   B. Caesarean section before labour
5. Previous Caesarean section, singleton cephalic, >37 weeks
   A. Spontaneous labour
   B. Induced labour
   C. Caesarean section before labour
6. All nulliparous breeches
   A. Spontaneous labour
   B. Induced labour
   C. Caesarean section before labour
7. All multiparous breeches (including previous Caesarean section)
   A. Spontaneous labour
   B. Induced labour
   C. Caesarean section before labour
8. All multiple pregnancies (including previous Caesarean section)
   A. Spontaneous labour
   B. Induced labour
   C. Caesarean section before labour
9. All abnormal lies (including previous Caesarean section but excluding breech)
   A. Spontaneous labour
   B. Induced labour
   C. Caesarean Section before labour
10. All singleton cephalic, < 36 weeks (including previous Caesareans section)
    A. Spontaneous labour
    B. Induced labour
    C. Caesarean section before labour

- All preterm pregnancies from the 24 completed to 36 completed weeks is taken up in group 10 (latest RCOG Criteria)
  a) Indicated induction
  b) Elective induction
  c) Caesarean section before labor
- Group 5 not taken into consideration(prev.cs group)
- During the period of study under group 2 and 4 subgroups where added

Exclusion criteria -

1. This classification does not account for pre-existing medical, surgical or fetal disease; indications for and methods used for labour; and degrees of prematurity, all of which may influence the rate of caesarean section.
2. Group 5 includes 2 quite different groups: (1) those who planned or needed a repeat caesarean section, and (2) those who attempted VBAC and required caesarean section.(gp not

included as previous cs)
3. Several maternal variables such as education, prenatal care visits not analyse

Sample size - n =502

MATERIALS AND METHODS

This prospective clinical study is being conducted in the department of Obstetrics and Gynaecology, Jubilee Mission Medical College & Research Institute for a time period of eighteen months .All the women, who delivered during this period by primary section in the labor ward were included. General data along with relevant obstetric information and complications were collected using a questionnaire. Indications were analysed and each case of CD was classified under Robson's classification. During the period of study under group 2 and 4 sub-groups were added (a) elective induction (b) indicative induction (c) Caesarean section before labor, therefore data was collected for the same and analysed. Results were calculated at the end of this period. Nominal, ordinal and continuous data were collected. After which data collected was subjected to statistical analysis.

Variables assessed -

a) Commonest group in Robson Classification
b) Commonest indication for CD
c) Induction to delivery interval
d) Commonest post-op complications

Statistical analysis -

The measured parameters are expressed as % analysis, along with Mean, Median, and Standard deviation. The data generated compared using the mentioned. After the analysis charts, graphs and pie charts where created for presentation.

Null hypothesis -

1. Indications of primary Caesarean section cannot be analysed
2. Modified Robsons criteria cannot be used for primary Caesarean section.

RESULTS

Under the study 502 cases were included. All of them who underwent Primary CD and studied under each of the Robsons class except class 5, of which 45.2% were in group 2.

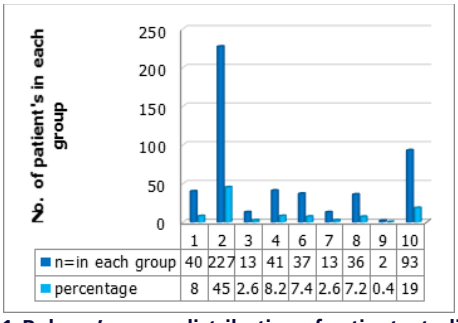

Figure 1: Robson's group distribution of patients studied

Out of the overall 502 patients assessed 77.9% nulliparous patients underwent CD and 22.1% of the multiparous women underwent CD. 74.3% were term pregnancies and 25.7% were preterm mainly in group 10.

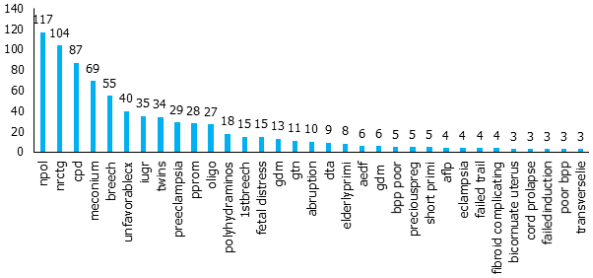

Figure 2: Commonest Indicators for CD

The commonest indications for CD was non–progression of labour followed by non- reactive cardiotocogram followed by cephalo-pelvic dis proportion. Out of the 227 patients induced 59.5% patients had elective induction and 33.4% women were induced due to an indication while the rest 7% underwent CD before labour.

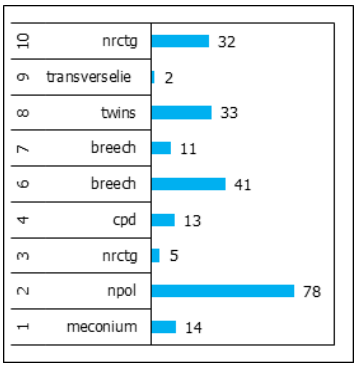

Figure 3: Robson Class commonest indications

The commonest induction to delivery interval was between 16 – 20 hrs (35.4%). Mean induction to delivery interval in group 1 was 14.05 hrs (Mean ±SD:14.05 ±5.542). In group 2 it was 17.34 hrs (Mean: 17.34±6.140). 97.5% of women in group 1 underwent emergency CD while the rest had elective. In group 2, 92.1% underwent emergency CD and 7.9% elective.In group3 all the women underwent emergency CD while in group 4 87.8% had emergency CD. In group 6, 46.3% had elective CD while in group 7, 41.7% had the same.in group 8, 66.7% underwent emergency CD while in group 9 both same. In group 10, 90.8% underwent preterm emergency CD. The second most commonest group in the study was group 10(the preterm group), in this group the commonest indication for CD was non – reactive cardiotocogram followed by fetal growth restriction or intra uterine growth restriction. Evidence based support is by the Barcelona trial.

Most of the women who underwent CD was discharged on post-operative day 3 with no maternal /neonatal complications (56.8%).The patients who had an extended hospital stay was for baby sake admission (217 women in total).This caused longer duration of hospital stay an extra expenditure other than the procedural expense.

Post-partum hemorrhage was next complication faced by 25 patients and 22 had maternal pyrexia, which was followed by maternal wound infection. 129 patients who underwent primary CD had no maternal and neonatal complications but 33.30% neonates were admitted as baby sake, 3.50% had Pph conservatively managed and 3% patients had maternal pyrexia .Elective induction without favourable bishops score could be a contributing factor.

Since neonates in group 10 are premature babies, baby sake admissions were high 65.4% along with high mortality, morbidity was also 6.5%.This trend was noted in group 10 only. Patients with no maternal or neonatal complications were few 15.1% who were discharged on day 3 or 4. Maternal indications like gestational hypertension with preeclampsia, eclampsia, HELLP and ARF were complication in the mother which was the reason for induction or CD.

CONCLUSIONS

A prospective observational study was conducted at Jubilee Mission Medical College Hospital, Thrissur for a period of eighteen months to evaluate the primary Caesarean section on the basis of Robson criteria, their indications and the immediate post-operative complications. 502 patients who underwent primary CD were included in the study excluding the previous CD group. Group 2 was the commonest class and the commonest indicator non progression of labour and commonest post-operative complications was admission for baby sake which was same when analysed separately in group 2 and 10 .In group 10 prematurity

was the major contributor. This study showed us that a common classification of CD rates and indications allows evaluation and comparison of the contributors to the rising Caesarean section rate and their impact. It also allows comparison between institutions, regions, and countries that adopt the classification.

Following conclusions were drawn from the study

- Robson classification can be used for analysing Caesarean section rates.
- The most commonest group was group 2 and the commonest sub group was 2b (indicated induction).
- The most commonest indication for Caesarean section was non – progression of labour.
- The mean induction to delivery time was between 16 – 20 hrs.
- The most commonest cause for extended hospital stay was baby sake admission and in group 10 prematurity was the major contributor for the same.

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