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Original Research Article

Partnership of obstetrician and neonatologist to improve neonatal outcome in peri-viable and premature babies: a cross sectional survey

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ABSTRACT

Background: Collaboration between obstetricians and paediatricians/Neonatologists provides the best quality care to infants and their mothers. Present study was conducted to evaluate the practices of obstetricians and neonatologists' partnership to improve neonatal outcome.

Methods: Present cross-sectional, observational study was conducted on 50 Obstetricians and 50 paediatricians/neonatologists during October 2021 to evaluate the practices of obstetricians and neonatologists' partnership to improve neonatal outcome.

Results: In present study, among 50 obstetricians and 50 pediatricians/ neonatologists, all i.e., 100 (100%) feel that partnership of obstetrician and neonatologist in managing pre-viable pregnancy improves neonatal outcome. Among 50 obstetricians, all i.e., 50 (100%) said that they will explain the need for caesarean section and if necessary classical caesarean section. All said they will explain the need and advantages of steroids. Among 50 pediatricians/neonatologists, majority i.e., 44 (88%) said that they will explain the need for caesarean section and if necessary classical caesarean section. All said they will explain the need and advantages of steroids. Among 50 obstetricians, majority i.e., 45 (90%) said that they will explain thoroughly the risk to the baby, survival, short term complications and disability, 30 (60%) each said that they will explain thoroughly the risk of RDS, need of resuscitation, need of NICU for baby, uncertainty of hospital stay and outcome. Among 50 pediatricians/ neonatologists, all i.e., 50 (100%) each said that they will explain thoroughly the risk to the baby, survival, short term complications and disability, the risk of RDS, need of resuscitation, need of NICU for baby, uncertainty of hospital stay and outcome. Expressions of pediatricians/ neonatologists were significantly different on counselling aspects of mother and baby.

Conclusions: In present study, majority of obstetricians and pediatricians/ neonatologists were of opinion that partnership between them surely improves neonatal outcome in peri viable and preterm babies.

Keywords: Obstetrician, Neonatologist, Partnership, Neonatal outcome

INTRODUCTION

Pre-pregnancy care aims to promote health of all reproductive women. It improves the pregnancy outcome.¹

To standardize a complete and integrated system of perinatal care, levels of maternal care are- basic care (level I), specialty care (level II), subspecialty care (level III), and regional perinatal health care (level IV).²

Early pre-natal care includes physical examination along with the laboratory investigations to assess the progress of pregnancy. It identifies high-risk factors which needs referral.²

Specialty care includes basic testing, USG, marker tests. It includes management of medical and obstetric complications.²

Subspecialty care includes care by fetal medicine specialists. It includes targeted USG and fetal echocardiography and intra uterine therapy.²

The main objective of local perinatal safety initiative was to eliminate preventable birth trauma. Thus, improving safety for mothers and babies.³

Oxytocin elective induction bundle elements included reassuring foetal status, examination of the cervix within 1 hour before or after start of oxytocin, absence or management of uterine hyperstimulation. It also includes documentation of gestational age more than 39 weeks or estimated foetal weight (EFW).⁴

Following practices improve perinatal outcome: 1. Care of the pregnant woman at risk for delivering at 22-26 weeks' gestation and their babies. 2. Communication between obstetric and neonatology professionals in antenatal management of high-risk pregnancies 3. Intrapartum communication and management of high-risk deliveries. 4. Maternal and neonatal outcomes 5. Infrastructure that facilitates obstetric–neonatal collaboration.⁵

A single course of betamethasone is recommended for pregnant women with 24 to 33 weeks of gestation at risk of preterm birth within 7 days. It should be given to woman with ruptured membranes and multiple gestation.⁶

A single repeat course of antenatal corticosteroids should be considered in women who are less than 34 weeks of gestation at risk of preterm delivery within 7 days provided their prior course of antenatal corticosteroids was administered more than 14 days prior.⁶

Neonates whose mothers received antenatal corticosteroids have significantly lower severity, frequency, or both, of respiratory distress syndrome, intracranial haemorrhage, necrotizing enterocolitis and death.⁷

Treatment should consist of either two 12-mg dose of betamethasone given intramuscularly 24 hours apart or four 6-mg doses of dexamethasone administered intramuscularly every 12 hours. Repeat courses (more than two) are not currently recommended.⁷

Betamethasone and dexamethasone are the most preferred corticosteroids to accelerate foetal organ maturation. Both have relatively weak immunosuppressive activity with short-term use.⁸

Tocolysis should not be used to delay delivery to administer antenatal corticosteroids in the late preterm period. It should not be indicated in late preterm delivery.⁹

The American academy of paediatrics recommends monitoring of neonatal blood sugars for late preterm infants. It is a known risk factor for hypoglycemia.⁹

Clinical chorioamnionitis is an absolute contraindication for use of antenatal corticosteroids.¹⁰

Maternal diabetes, pre-eclampsia and HT are not contraindications but blood sugar should be monitored carefully.¹⁰

Antenatal corticosteroid therapy is recommended for women at risk of preterm birth from 24 weeks to 34 weeks of gestation when the following is confirmed: gestational age assessment is accurate; preterm birth is imminent; no clinical chorioamnionitis; adequate childbirth care is available; the preterm new-born can receive adequate care and safe oxygen use.¹¹

Kangaroo mother care is recommended for the routine care of new-borns weighing 2000 gm or less at birth. It should be initiated in health-care facilities as soon as the new-borns are clinically stable.¹²

Surfactant replacement therapy is recommended for intubated and ventilated new-borns with respiratory distress syndrome.¹²

During ventilation of preterm babies born at or before 32 weeks of gestation, start oxygen therapy with 30% oxygen or air (if blended oxygen is not available), rather than with 100% oxygen.¹²

Aims and objectives

Present study was conducted to evaluate the practices of oobstetrician and neonatologist partnership to improve neonatal outcome with the following objective-to explore how obstetricians and neonatologists communicate with each other.

METHODS

Present cross-sectional, observational study was conducted on two independent random samples of 50 obstetricians and 50 paediatricians/ neonatologists who were selected from the convenient sampling frame of active practitioners during October 2021. Their responses were recorded in a pre-designed, pre-tested structured questionnaire by google link to evaluate the practices of obstetricians and neonatologists' partnership to improve neonatal outcome.

All of them responded and expressed their views freely. Response rate was 100%.

Inclusion criteria

Obstetricians who are working and obstetricians willing to participate in the study were included in the study.

Exclusion criteria

Obstetricians who are not working and obstetricians not willing to participate in the study were excluded from the study.

were between 41-50 years age group while 2 (4%) were between 21-30 years age group.

Majority i.e., 35 (70%) were males while 15 (30%) were females.

The age distributions in two groups of respondents were comparable (p=0.738), but sex distribution in them was significantly different (p=0.001). The results were on expected line (Table 2).

Table 1: Questionnaire.

| S. no. | Questionnaire |
|--------|---|
| 1. | Age (Years) |
| 2. | Sex |
| 3. | Faculty-Obstetrician or pediatricians/ neonatologist |
| 4. | Do you think partnership of obstetrician and pediatricians/ neonatologist in managing pre-viable and preterm pregnancy improves neonatal outcome? |
| 5. | When counselling about diagnosis of mother and complications to her, what will you do? |
| 6. | While counselling for caesarean section and need for classical caesarean section. what will you do? |
| 7. | While counselling about risk to the baby, survival, short term complications and disability, what you will do? |
| 8. | While counselling for the need and advantages of steroids, what you will do? |
| 9. | While counselling for risk of RDS, need of resuscitation, what you will do? |
| 10. | While counselling for the need of NICU for baby and uncertainty of hospital stay and outcome, what will you do? |

Data analysis

Data was coded and analysed in a statistical software, STATA, version 10.1 (2011). Responses were expressed as frequencies and percentages. Similarity in expressions were assessed with Pearson’s Chi-square test or Z-test for difference in proportions.

RESULTS

In present study, among 50 obstetricians, majority i.e., 29 (58%) were above 50 years of age, 9 (18%) were between 31-40 years age group, 8 (16%) were between 41-50 years age group while 4 (8%) were between 21-30 years age group.

Majority i.e., 43 (86%) were females while 7 (14%) were males.

In present study, among 50 pediatricians/ neonatologists, majority i.e., 17 (34%) were above 50 years of age, 10 (20%) were between 31-40 years age group, 11 (22%)

Table 2: Age and sex distribution of subjects.

| Variables | No. of obstetricians, n (%) | No. of pediatricians/ neonatologists, n (%) |
|--------------------|-----------------------------|---|
| Age (Years) | | |
| 21-30 | 4 (8) | 2 (4) |
| 31-40 | 9 (18) | 10 (20) |
| 41-50 | 8 (16) | 11 (22) |
| >50 | 29 (58) | 17 (34) |
| Sex | | |
| Female | 43 (86) | 15 (30) |
| Male | 7 (24) | 35 (70) |

In present study, among 50 obstetricians and 50 pediatricians/ neonatologists, all i.e., 100 (100%) feel that partnership of obstetrician and neonatologist in managing pre-viable pregnancy improves foetal outcome (Table 3).

Table 3: Partnership of obstetrician and neonatologist.

| Partnership of obstetrician and neonatologist in managing pre-viable pregnancy improves foetal outcome? | No. of obstetricians, n (%) | No. of pediatricians/ neonatologists, n (%) |
|---|-----------------------------|---|
| Yes | 50 (100) | 50 (100) |
| No | -- | -- |
| Not sure | -- | -- |

In present study, among 50 obstetricians, all i.e., 50 (100%) said that they will explain the need for caesarean section and if necessary classical caesarean section. All said they will explain the need and advantages of steroids.

In present study, among 50 pediatricians/ neonatologists, majority i.e., 44 (88%) said that they will explain the need for caesarean section and if necessary classical caesarean section. All said they will explain the need and advantages of steroids. Remaining 6 (12%) said they will leave this to obstetrician. Expressions of pediatricians/

neonatologists were significantly different on counselling aspects of mothers (p=0.0009) (Table 4).

In present study, among 50 obstetricians, majority i.e., 45 (90%) said that they will explain thoroughly the risk to the baby, survival, short term complications and disability, 30 (60%) each said that they will explain thoroughly the risk of RDS, need of resuscitation, need of NICU for baby, uncertainty of hospital stay and outcome.

In present study, among 50 pediatricians/ neonatologists, all i.e., 50 (100%) each said that they will explain thoroughly the risk to the baby, survival, short term complications and disability, the risk of RDS, need of resuscitation, need of NICU for baby, uncertainty of hospital stay and outcome.

Expressions of pediatricians/ neonatologists were significantly different on counselling aspects of baby (p<0.05) (Table 5).

Table 4: Counselling about mother.

| Counselling about mother | No. of obstetricians, n (%) | No. of pediatricians/neonatologists, n (%) | P value |
|---|-----------------------------|--|---------|
| Diagnosis of mother | 50 (100) | 44 (88) | 0.0009 |
| Complications in mother | 50 (100) | 44 (88) | 0.0009 |
| Need for caesarean section | 50 (100) | 44 (88) | 0.0009 |
| Need for classical caesarean section | 50 (100) | 44 (88) | 0.0009 |
| Need and advantages of steroids | 50 (100) | 44 (88) | 0.0009 |

Table 5: Counselling about baby.

| Counselling about baby | No. of obstetricians, n (%) | No. of pediatricians/ neonatologists, n (%) | P value |
|--|-----------------------------|---|---------|
| Counselling about baby | 45 (90) | 50 (100) | 0.0218 |
| Risk to the baby, survival, short term complications and disability | 45 (90) | 50 (100) | 0.0218 |
| Risk of RDS, need of resuscitation | 30 (60) | 50 (100) | 0.0001 |
| Need of NICU for baby | 30 (60) | 50 (100) | 0.0001 |
| Uncertainty of hospital stay and outcome | 30 (60) | 50 (100) | 0.0001 |

DISCUSSION

In present study, among 50 obstetricians, majority i.e., 14 (28%) were practicing for 16-20 years followed by 12 (24%) practicing for 5-10 years. 10 (20%) were practicing since >20 years, 9 (18%) were practicing for 11-15 years while 5 (10%) were practicing since <5 years.

Siliprandi et al found that if neonatologist and obstetric both were of the more human approach to birth. We know that it's possible only when everybody involved in birth work is in great harmony with each other.¹³

Raju et al found that there was no difference of opinion of steroid administration, risks to the baby or caesarean section by specialty. Raju et al found that obstetricians more frequently discussed antibiotics (p=0.005), maternal risks (<0.001). They explain need for caesarean section and risks associated with, a classical caesarean section (<0.005).¹⁴

Raju et al found that both obstetricians and neonatologists deferred questions about steroid administration to the other specialty.⁴ Raju et al found that neonatologists discuss short-term complications for the baby (p=0.044), resuscitation (p=0.015) and palliative management options (p=0.023).¹⁴

Edmonds et al found that information to parents included diagnosis; prematurity; management options; risks and benefits; neonatal interventions; and intensive care hospitalization, quality of life (QOL); and time. This did not differ by specialty. Half of the counselling was on comfort or suffering, and uncertainty led by neonatologists. Uncertainty was explained in terms of antepartum course and timing of labor, as well as about the neonatal outcomes and the potential spectrum of impairment.¹⁵

Tara et al found that respiratory distress syndrome (89%) and intraventricular haemorrhage (81%) were discussed more than long-term outcomes like motor delays or cerebral palsy (68%), cognitive delays or learning disabilities (63%), and chronic lung disease (61%).¹⁶

CONCLUSION

In present study, majority of obstetricians and pediatricians/ neonatologists were of the opinion that partnership between them surely improves neonatal outcome in peri-viable and pre-term babies. However, expressions of pediatricians/ neonatologists were found significantly different on some counselling aspects of mothers and babies.

Co-ordination between obstetricians and paediatricians/neonatologists is of utmost importance for the health of both mother and new-born. There is a need to improve agreement among obstetricians and pediatricians/neonatologists on certain issues. It should become a common practice for benefit of both segments of the society- the service provider and the beneficiary mother and new-born!

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