

Spectrum of Neonatal Birth injuries: a Prospective Cohort Study

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Abstract: The birth injuries are avoidable and unavoidable mechanical or anoxic trauma incurred by the infant at birth and this study aims to know the birth injuries in neonates attended Neonatal OPD / admitted in NICU of Government General Hospital, Kurnool. This study is a hospital based prospective cohort study conducted from March 2013 to February 2014. The babies were examined for birth injuries, relevant obstetric history regarding maternal age, number of previous pregnancies, parity of mother, mode of delivery, difficult labour like malpresentations, malposition, history of any instrumentations used like forceps or vacuum , caesarean sections, Gestational age and birth weight of the baby were noted. A total of 900 babies were observed and among them 99 babies were having birth injuries and 861 were normal vertex presentation 39 deliveries were abnormal presentation. Among 861 normal deliveries,85 deliveries (9.87%) of babies had birth injuries, whereas among 39 abnormal presentations, 14 deliveries (35.89%) babies had birth injuries. Birth asphyxia was the common injury and babies were born to mothers between 21-25 years of age. It is also observed that the babies with birth injuries have a birth weight between 2-3 Kgs. So we conclude that to bring down the incidence of birth injuries which is a malady in the life of the growing child resulting in both physical and mental handicap there should be proper antenatal check-up, good obstetric care and management of birth asphyxia.

Keywords: Neonatal birth injuries, birth asphyxia, normal presentations, abnormal presentations and birth weight.

I. Introduction

Birth injury is defined by the National Vital Statistics Report as impairment of infant's body function or structure due to adverse influences that occurred at birth¹. Birth injuries usually happen as a consequence of an extreme intrapartum mechanical forces acting directly to bony and soft connective tissues of fetal or maternal organs². Incidence of birth injuries is 6- 8 per 1000 live births³.The reported incidence of birth injuries is about 2 and 1.1 percent in singleton vaginal deliveries of fetuses in a cephalic position and in caesarean deliveries respectively^{4,5}. There is a wide spectrum of birth injuries ranging from minor and self-limited problems (eg, laceration or bruising) to severe injuries that may result in significant neonatal morbidity or mortality (ie., spinal cord injuries). Birth injuries are a significant cause of neonatal morbidity and mortality. Although they are frequently associated with traumatic delivery, birth injuries often occur in normal spontaneous deliveries in the absence of any risk factors⁴. Newborn who has sustained birth injury is a great concern for the parents, obstetrician and Paediatrician. And such event may initiate litigation and legal action against the doctor and requires proper counselling and communication by the hospital staff. By keeping all the above points in mind the present study is being conducted to know the incidence and associated risk factors of Birth trauma / birth injuries among neonates attended Neonatal OPD / admitted in NICU at Govt.General Hospital, Kurnool Medical College, Kurnool.

II. Methodology

This study was a hospital based prospective cohort study conducted from March 2013 to February 2014 in neonates with birth injuries attended Neonatal OPD / admitted in NICU of Government General Hospital Kurnool. An Institutional ethical permission was taken to conduct the study. Out of 900 newborn babies during that period, 99 had birth injuries. All the 99 babies were examined for the type of birth injuries, relevant obstetric history regarding maternal age, number of previous pregnancies, parity of mother, mode of delivery, difficult labour like malpresentations, malposition, history of any instrumentations used like forceps or vacuum , caesarean sections, Gestational age and birth weight of the baby were noted. The new born baby with physical deformity, intrauterine death, Stillborn were excluded from the study. The results were documented using a systematically designed case record proforma and the different types of birth injuries were tabulated. Descriptive statistics like percentages were used to assess the types of injuries.

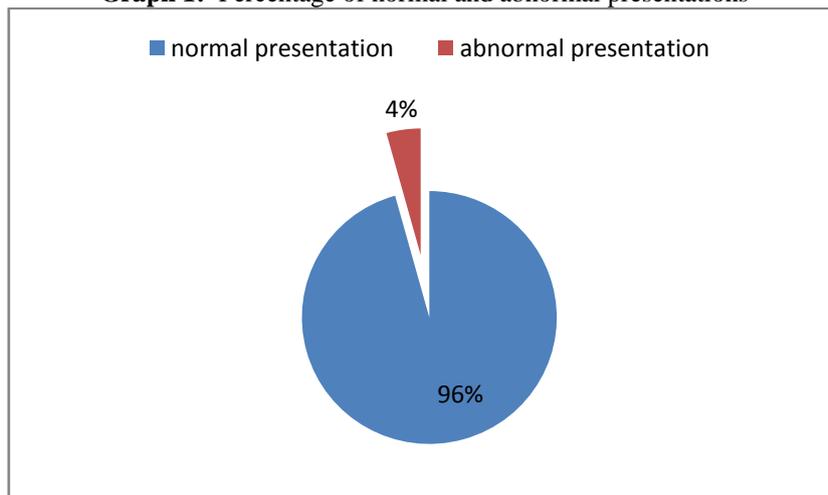
III. Results

A total of 900 babies observed and among them 99 babies were having birth injuries with a male to female ratio 1.25:1. There was 97 term and 2 preterm babies. Birth asphyxia noted in 42(42.4%), Cephalhematoma seen in 31(31.3 %), Soft tissue injuries in 16 (16.2%), Birth asphyxia-cephalohematoma among 3(3.0%), Subaponeurotic haemorrhage 2 (2%) , Facial nerve palsy 2 (2%), Birth asphyxia and Subconjunctival haemorrhage in 2(2%) and 1(1 %) babies found with birth asphyxia and brachial plexus injury. Majority of them were born to mothers between 21-25 years of age. Out of 900 deliveries 861 were normal vertex presentation, in them 85 babies (9.87%) were have birth injuries, whereas 39 deliveries were abnormal presentation with 14 babies (35.89%) were have birth injuries.

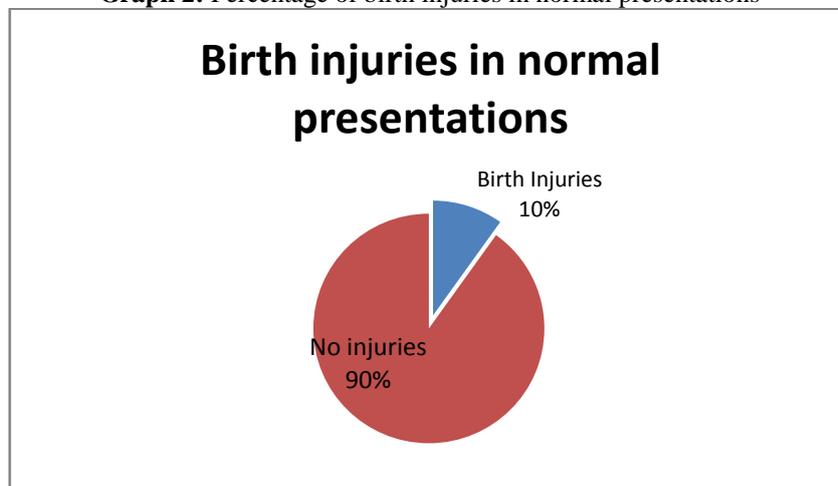
Table-1: Spectrum of birth injuries

S.No.	Type of Birth Injury	Number of Cases	Percentage(%)
1	Soft tissue injury	16	16.2
2	Cephalhematoma	31	31.3
3	Sub aponeurotic haemorrhage	2	2.0
4	Facial nerve injury	2	2.0
5	Birth asphyxia	42	42.4
6	Birth asphyxia and cephalhematoma	3	3.0
7	Birth asphyxia and brachial plexus injury	1	1.0
8	Birth asphyxia and Subconjunctival hemorrhage	2	2.0
9	Total	99	100.0

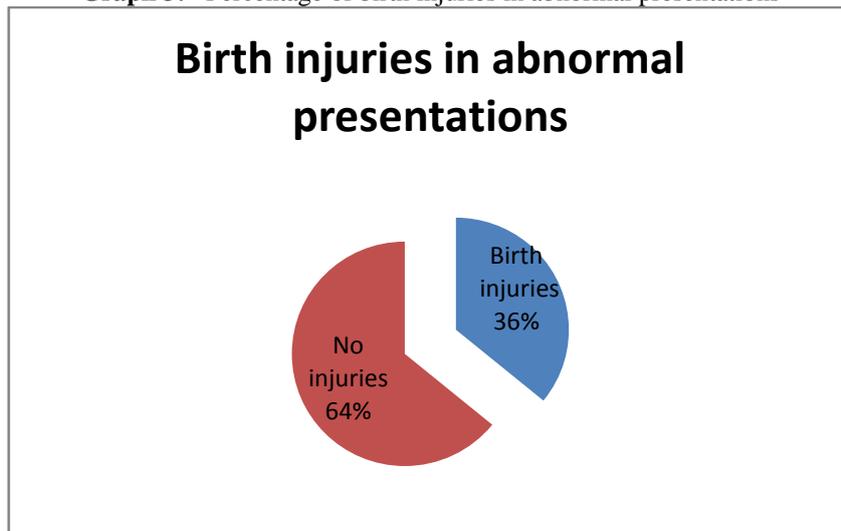
Graph 1: Percentage of normal and abnormal presentations



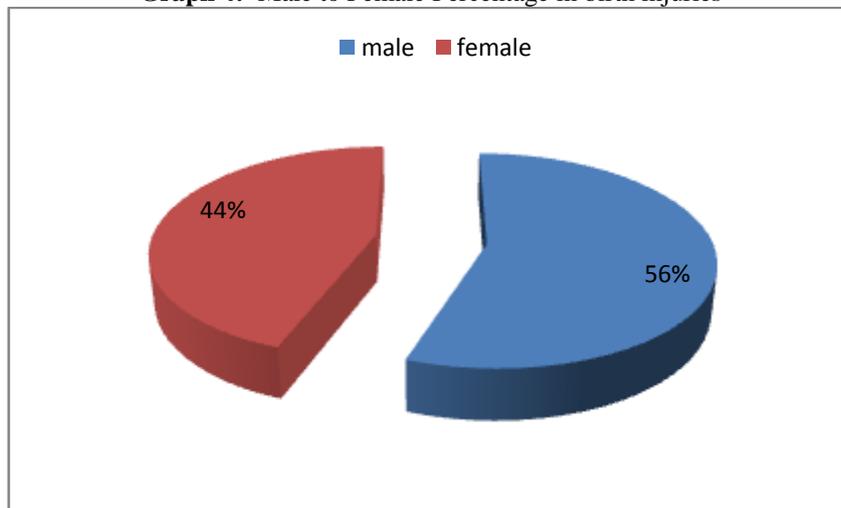
Graph 2: Percentage of birth injuries in normal presentations



Graph 3: Percentage of birth injuries in abnormal presentations



Graph 4: Male to Female Percentage in birth injuries



IV. Discussion:

Incidence of birth injuries is 6- 8 per 1000 live births³. In our study, we observed 99 birth injuries out of 900 live births (11%). A study conducted by Charusheela Warke et al found it to be 3.26 per 1000 live births³. A similar study by E. K. Sauber-Schatz et al showed the rate of birth trauma was 29 per 1000 in hospital births⁶. The incidence varies from place to place and also in different parts of the world, mostly determined by the quality of obstetrical care available. We found Birth injuries with male to female ratio of 1.25:1 similar results seen in a study by Numan N. Hameed et al showed that birth injuries are more common in male children⁷. In our study, the most common birth injury seen was birth asphyxia 46.4%. In relation to maternal age majority of the birth injuries were noted in mothers between 21-25 age group, Similar results were seen in study of Bhalla et al⁸. If the mother is young, the birth canal will be rigid hence occurrence of birth injuries can be expected more⁸. In our study, out of 900 deliveries 861 were normal vertex presentation, among 861 only 85 babies (9.87%) were have birth injuries, whereas 39 deliveries were abnormal presentation with 14 babies (35.89%) were have birth injuries. It shows that birth injuries are five times more common in abnormal presentation. In our study, we also found that male infants are more likely to suffer from perinatal injury than the female infants. The male seems to be more vulnerable to perinatal injuries. In the present study male to female ratio was 1.25:1.

V. Conclusion

In our prospective study, we observed a spectrum of birth injuries, in which birth asphyxia was the most common followed by Cephalhematoma and soft tissue injuries. Risk factors observed in our study were first born, malpresentation of the foetus and forceps delivery. As seen from this study, proper antenatal check-

up, good obstetric care and management of birth asphyxia would go a long way in bringing down in incidence of birth injuries which is malady in the life of the growing child resulting in both physical and mental handicap. Simply stated preventing birth trauma will reduce infant morbidity and mortality and reduce the stresses on the health care system.

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