

A descriptive study on determinants of birth injuries in the new born

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Abstract

The understanding of the neonatal disorders seems to have lagged behind until recently among the branches in the field of paediatrics. Birth injuries contribute as the third major cause of the neonatal mortality in most of developing countries much more so in our country. Very little work has been done in our country on birth injuries and its relation to various factors such as abnormal presentation, parity, etc. The study consists of 100 cases of birth trauma noticed among 850 consecutive viable birth during the study period of 1 ½ years. Proforma contains details of the health status of the mother, antenatal, intranatal and postnatal particulars including the age, sex, weight, mode of delivery, type of presentation and nature of the birth injury in different modes of delivery and type of presentation of the baby. Each new born baby was examined thoroughly according to the Proforma and also previous obstetric history, details of delivery, antenatal check-up etc., were obtained. Asphyxia forms the major group which were noted in 45 of total 100 injured babies. Cephalohematoma was the next common injury being noted in 32 cases. 18 babies had soft tissue injuries and 4 babies have neurological injuries. As seen from the study proper antenatal check-up, good obstetric care and management of toxæmia would go a long way in bringing down incidence of birth injuries which is malady in the life of the growing child resulting in both physical and mental handicaps.

Keywords: Birth injury, birth asphyxia, cephalohematoma, soft tissue injury, neurological injuries

Introduction

The understanding of the neonatal disorders seems to have lagged behind until very recently among the branches in the field of paediatrics. While all other branches of Medicine have attracted considerable attention and gave scope for an optimistic approach for the patient as well as to the medical attendant, neonatal affections remain, throughout in the darkness^[1]. Birth injury contributes as the 3rd major cause of the neonatal mortality in most of developing countries much more so in our country and is surpassed by asphyxia neonatorum and neonatal infections. While reviewing the rapid progress of neonatology in well advanced countries like U.S.A. and England. We have to realise our own limitations in the field due to various peculiar conditions each one of us have face in achieving the standards of progress. If we see at the population served by various health personal and facilities available-1 doctor to

4800, person one maternity assistant to 9700, 1 nurse to 9600 and 1 hospital bed to 1700 it is evident that gross insufficient medical aid is being extended to our people [2].

The obstetrician who undertakes a study on "Birth injuries" and its remote effects is handicapped by his short span of observation. He is familiar with the growth of the foetus in the uterus and the immediate effects of labour on the child. He is less familiar with the possible remote results, the so-called neurological deficits. There are usually brought to his attention accidentally by the mother who seeks advice regarding consultations with a neurologist or psychiatrist because of abnormalities. In the growth and behaviour pattern of the developing off-spring. The physician who observes a child throughout the period of rapid growth and who is familiar with the methods of physical and psychological examinations and diagnostic tests may be unable to interpret the birth record actually and correlate the findings [3].

Modern techniques in the field of obstetrics and neonatology have become highly specialized or infact are currently practicable only in institutions devoted to that practice. Potter in 1952 stated that as the judgement and technical skill of the obstetrician increase, infant deaths from cerebral hemorrhage and other birth injuries, decrease [4].

Very little work has been done in our country on birth injuries and its relation to various factors as abnormal presentations, parity etc., an attempt was made to study birth injuries in this institutions to know the various perinatal factors leading to birth injuries.

Methodology

Mothers who are having dystocia and complicated pregnancies are referred from other hospitals in the later stages of delivery. Annually about 600 mothers give birth to the babies in this hospital, managed by the qualified obstetricians and paediatricians.

The study consists of 100 cases of birth trauma noticed among 850 consecutives viable birth during the study period of 1½ years. Proforma contains the details of the health status of the mother, antenatal, intranatal and postnatal particulars including the age, sex, weight, mode of delivery, type of presentation and nature of the birth injury in different modes of delivery and type of presentations of the baby. Each newborn baby was examined thoroughly according to proforma and also previous obstetric history, details of delivery, antenatal checkup etc., were obtained.

The following investigations were done as and when needed:

- Radiological studies for evidence of fractures.
- In asphyxiated babies serum calcium and blood glucose estimation were done.
- C.S.F. was subjected to microscopic exam, protein and sugar estimation.

Results

Table 1: Incidence of birth injury relation to maternal age in 100 cases studied

Age group	Incidence
15-20 years	19
21-25 years	42
26-30 years	26
31-35 years	20
36-40 years	3
Total	100

Table 1 shows the incidence of birth injury in 100 cases studied with relation to maternal age. Majority of the birth injuries were noted in the babies born to mothers between 21 to 25 years of age (43%) followed by 26 to 30 (27%) and 15 to 20 years (20%) categories. This increased

in the particular age group may be a reflection of increased number of deliveries in corresponding age group.

Table 2: Birth order and birth injuries

Birth order	Number
I	68
II	10
III	09
IV	05
V	05
VI	03

In the present series birth injury was noted mostly in the first born, that is 68% of cases whereas only 8% of cases noted in babies born to grand multies. Hence first-born babies seems to be more prone for birth trauma compared to subsequently born once.

Table 3: Shows the distribution of birth injury in relation to nature of delivery

	Nature of delivery	No. of cases delivered	No. of B.I. noted
1.	Normal vaginal	765 (90%)	79
2.	Forceps	15 (1.76)	14
3.	Breech	10 (1.17%)	2
4.	Cesarean	60 (7.05%)	5
	Total	850	100

In this series, it is observed that the highest incidence of birth injuries were recorded in normal vaginal deliveries and the least in breech. This may be a reflection of total number of babies born in relation to the nature of deliveries observed during the study period.

Table 4: Birth injuries and nature of deliveries

	Nature of delivery	Percentage of birth injuries
1.	Normal vaginal	79
2.	Forceps	14
3.	Breech	2
4.	Caesarean	5

In the series, it is observed that, highest incidence of birth injuries were recorded in normal vaginal delivery, followed by forceps.

Table 5: Birth injuries and type of presentation

Type of presentation	Birth injuries
Vertex	87%
Breech	09%
Face	03%
Brow	01%

87% of the injuries were noted in babies who were born by vertex presentation. In breech deliveries 9% of the babies had injuries.

Table 6: Birth injuries and sex

Male	66
Female	34

Male babies were affected more than female babies, the ratio being 1.9:1.

Discussion

The age of the mother may contribute to the incidence of birth injury. If the mother is very young or if she is elderly primi, the birth canal is rigid, the head has to be moulded under pressure and body is squeezed through the rigid birth canal resulting in injury to the foetus. There may be dystocia of the shoulder which results in fractures and/or peripheral nerve injuries. In this study 20% of the mothers were younger than 20 years and 11% of the mothers were older than 30 years. Though the incidence of birth injuries appears to be highest among the mothers whose age is between 20 and 30 years, it cannot reflect the true incidence of injuries in this age group. If we consider the total number of deliveries majority of the mothers were in the age group of 20 to 30 years and the number of mothers conceiving in the age group of less than 20 years is less. In this study out of 850 deliveries 765 mothers were in the age group of 20-30 years and 85 mothers belong to the age group of 15 and 20 years. Out of 85 mothers, 35 mothers had given birth to babies who had birth injuries. This gives the incidence as high as 41% whereas the mothers in optimal age group for conception had given birth to 36% of babies with birth injuries. This confirms the fact that the injuries are common in the younger mothers ^[5].

68% of the babies with birth injuries were first born. The incidence of injuries diminished as the birth order increased. 8% of the babies were born to grand masti mothers. In the primi the inelastic birth passage exert more pressure so that the baby has to pass through the birth canal under stress which may lead to birth injuries. In grandmulties, the resilient birth canal may make the fetus lie in the abnormal position, hence abnormal presentations are common. This may lead to birth injuries ^[6].

Majority of the injuries were noted in the babies born by vertex presentation. the outlet is rigid and labour is prolonged where the head is large. Whenever there is arrest of descend of head forceps may have to be applied. This results in compression and moulding of head leading into soft tissue injuries, fetal distress and asphyxia and sometimes cephalohematoma. It is expected in breech presentation there will be difficulty in after coming head and while delivering the head, there may be injury to bones and nerves. In this study 9% of the babies were born by breech presentation ^[7].

Many a time nature of birth injuries are determined by the mode of delivery, soft tissue injuries could occur in babies who are delivered by vaginal delivery, but if there is a prolonged labour there are chances of developing asphyxia. Birth injuries were noted in 48% of the babies who were delivered normally, birth injuries are highest among instrumental deliveries. In this study 3% of the babies were born after forceps application. The type of forceps, were outlet or traction forceps, skill of the obstetrician, duration of labour and size of the head determines the nature and incidence of birth injuries.

Male infants are more likely to suffer from perinatal injury than the female infants. The difference is prevalent in most of the mammalian species. It used to be attributed to the large size of the male infant. But even where allowance is made for this, the male still seems to be more vulnerable to perinatal injuries (forfar). In the present study male to female ratio was 1.95:1. Similar were findings reported by Meharban Singh and Saxena *et al.* ^[8]

Conclusion

- Birth injuries were noted more in the babies born to mothers whose age was between 20 to 30 years. The incidence is higher in babies born to younger mothers.
- First born babies were affected more than the subsequent ones. Only 8 of the babies whose birth order was more than 5 had birth injuries.
- 87 of the injured babies were born by vertex presentation and 9 were born by breech presentation, 3 by face and only one by brow presentation.
- Out of the 48 injured babies there was no difficulty in delivery. forceps extraction was done in 31 babies. 14 babies injured were delivered by caesarean section. 7 of the babies were born by breech.
- Male babies were affected more than the females the ratio being (1.9:1) this is the reflection of birth ratio in total no. of babies born during the study period.

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