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FREQUENCY AND RATE OF RISK OF BIRTH FRACTUES IN NEONATES

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Abstract:

Objective: *The fractures of skeleton faced by the newborns at the time of birth or delivery are BF (birth fractures. The main objective of this research work was to conclude the various types and occurrence of birth fractures in two different health centers.*

Methodology: *It is a transverse research work in which the review of all the files of delivery carried out in Mayo Hospital Lahore. This study started in August 2017 and lasted up to September 2018. Record fulfilment about factors associated with females & newborns as delivery type, fractures of the bones, weight at the time of birth & mother known diseases carried out.*

Results: *in the duration of this one year study, 10722 births happened, 7823 were normal deliveries through vagina & 2899 deliveries carried out with the help of cesarean operation. Complication in deliveries occurred in 21 cases due to birth fractures. Fifteen cases were the victim of clavicle & 6 were the victim of humerus fractures. We found no important risk factor other than the acknowledged ones.*

Conclusion: *The most frequent site of the BF was clavicle and majority of these complications occurred with the acknowledgement of the risk aspects. We found that it was impossible to avoid such fractures at the time of delivery but we should attempt to identify the mothers with great risks and babies before the time of labor pain. In those complicated cases, there should be a preference of cesarean operation as a safe procedure for the accurate delivery.*

Keywords: *fractures, clavicle, victim, cesarean, complication, frequent, methodology, newborns, neonate, frequency.*

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INTRODUCTION:

The fractures associated with birth are preventable or unpreventable disorders which mostly happened at the time of delivery. The frequency of these complications depends upon the skillfulness of the professional staff, fetal condition & mother. One report stated the occurrence of this complication from two to seven per thousand deliveries [1, 2]. The suffering related to birth was mostly because of difficult normal deliveries through vagina particularly the shoulder in presentation of the vertex & dystocia of the shoulder and utilization of the forceps apparatus [3, 4]. Nevertheless, these types of fractures can occur when neonate is with a normal weight & there is no disorder or complication in the delivery.

In spite of modification in the care of the neonates and administration of the delivery processes, it is possibility of birth fractures to be occur and it can be the problem of the professional of the related field as doctors or midwives. There are many known rick aspects of the birth fractures, a few complication occur in the non-availability of these predisposing aspects [5, 6]. The diagnosis of the birth fractures usually carried out after the birth or in nurseries rooms and those cases refer to orthopedist for proper administration of the disorder. This research work carried out to find out the occurrence rate & linked risk aspects of the BF between the live births in the delivery and nursery rooms of 2 general health care centers of Lahore, Pakistan.

METHODOLOGY:

This transverse research work conducted from September 2017 to August 2018 for complete one year in Mayo Hospital Lahore. The examination of all the newborns babies which were live after deliveries in these two health care centers carried out by pediatrician & in the case of any visible or suspected fracture, further treatment carried out by orthopedist after the consultation. The detection of the birth fractures was depending upon the pseudo paralysis, continuity loss, sensitivity, body parts swelling, any deformation & confirmation of these complication carried out with the help of radiography. The newly born with the injury of brachial plexus or pathologic complications were not the part of this research work. We also checked the files of the mothers to get information for their diseases as diabetes or high BP. Some other features as the type of delivery normal through vagina or cesarean operate, vertex or breech presentation and the weight of the baby at the time of birth recorded. Their separation carried out according to their body weight as,

Group A: greater than 4000 grams, Group B: from 3000 to 4000grams and Group C: less than 3000 grams.

The ethical committees of the hospitals gave the approval for the conduction of this research work.

RESULTS:

A sum of 10722 new live births occurred in both healthcare centers. The normal deliveries through vagina were 7822 & 2899 were the outcome of caesarian operation. 21 new births discovered with birth fractures & this was consequence of normal deliveries through vagina providing an occurrence of 1.960/1000 newborns. The fractures of Clavicle found in 15 patients & fracture of humerus found in 6 new births. There were 6 female babies and 15 were male babies. There was fracture of limb of right side in 13 patients, limb of right side in 8 patients & there was not any fracture of bilateral limb. The mean weight at the time of birth of new births was having no fracture was 3735 grams & average weight at the time of birth with birth fracture of clavicle of newborns was 3850 gr. Mothers of 3 babies were patients of diabetes and 2 other female found with disease of hypertension. There was presence of dystocia of shoulder in only one new birth. We found no birth fracture with forceps delivery. Table-1, 2 & 3 displays the elaborated description of the results.

Table-I: Risk factors in Birth fracture.

Factors	Patient	Percentage
Vaginal delivery	21.0	100.00
Vertex	13.0	61.90
Breech	8.0	38.10
Diabetic mother	3.0	14.29
Hypertensive	2.0	906.00
Shoulder dystochia	1.0	4.80
Birth weight >4000 g	6.0	28.57

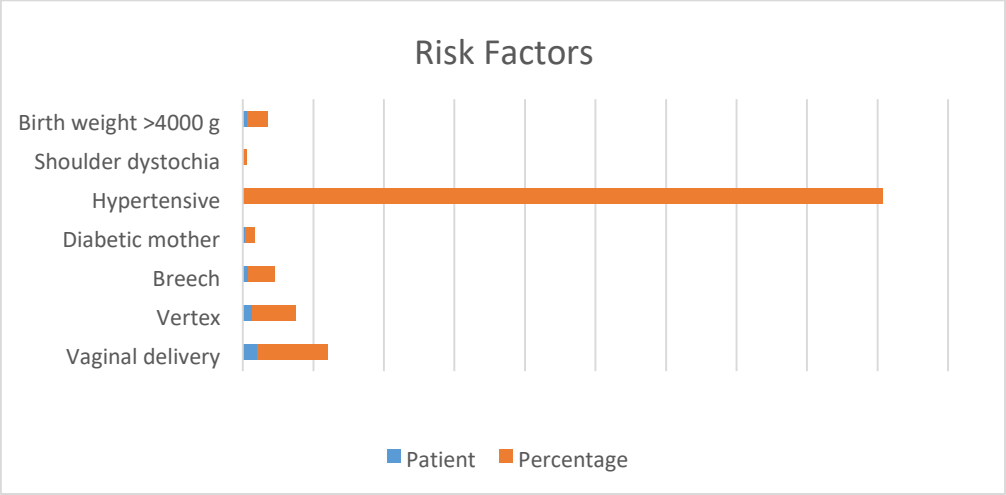


Table-II: Rate of BF and fetus presentation.

Fracture	Repitition	Percentage	Prevalence (%)	Breach	Vertex
Clavicle	15.0	71.430	0.14	5	10
Humerus	6.0	28.570	0.06	3	3
Total	21.0	100.000	1.96	8	13

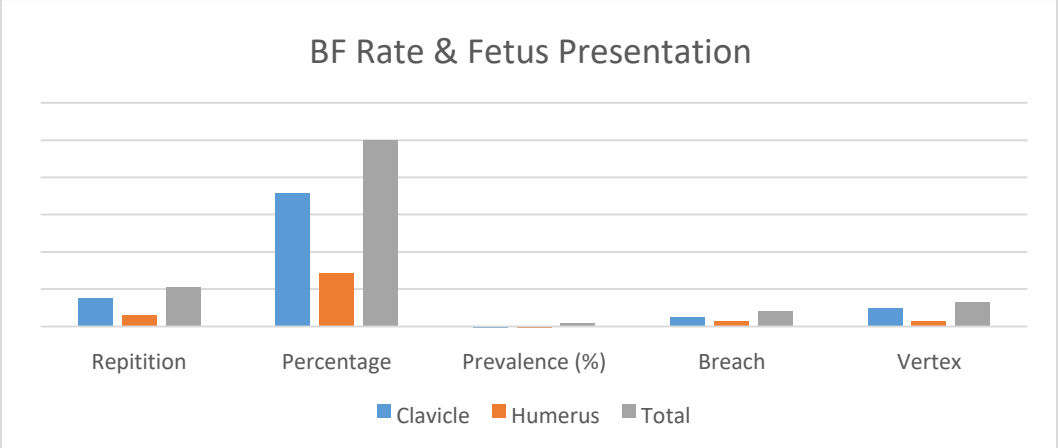
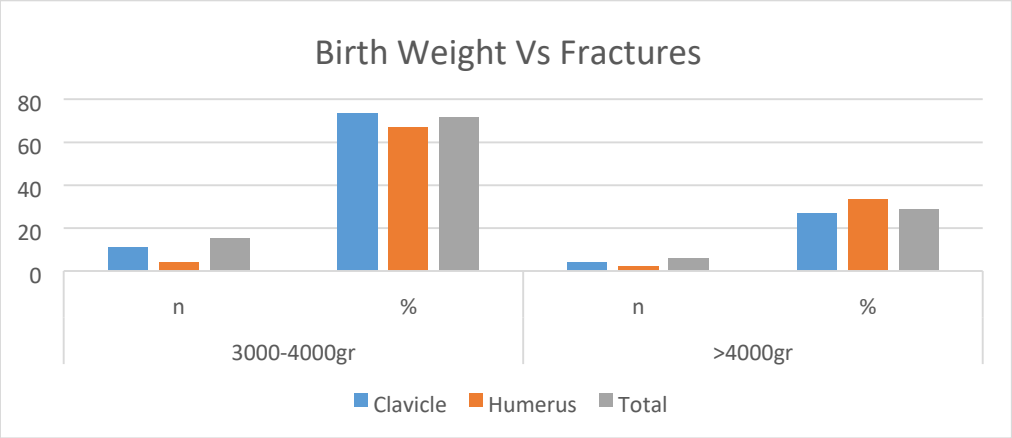


Table-III: Birth weight of neonates with fracture.

Fracture	3000-4000gr		>4000gr	
	n	%	n	%
Clavicle	11	73.33	4	26.67
Humerus	4	66.6	2	33.33
Total	15	71.43	6	28.57



DISCUSSION:

According to this research work, the total occurrence rate of the BF was 1.960 & clavicle fracture was 1.40 per thousand births which were live after delivery. This outcome displays the same or very less rate as compared to the other research works in the same subject [7, 8]. The most frequent site of the birth fracture was fracture of clavicle. Humerus fracture was second in number. We found in this case study that the resident training level was not influencing the on the occurrences of these types of complications. We also discovered direction between the gender of new births & BF, but this disparity was not important in accordance with the weight of the body.

There was a report about the birth fractures with an unpredictable frequency. The most frequent bone injury was the fracture of the clavicle with a total frequency rate from 3% to 42% among BF of skeleton [9-11]. Niropam concluded the rate of the injuries at the time of birth in 6 out of 1000 live births [12]. Oppenhem concluded the clavicle fracture rate of 2.7 per 1000 live births [13]. Hughes concluded in his case study that the trauma of skull & fracture of clavicle were the most frequent injuries at the time of birth with a high rate of 9.50 per 1000 newborns [14]. There was a low frequency of the femur fractures & humerus fractures at the time of delivery. Morris stated that there was an occurrence of fracture of femoral in 0.13/1000 newborns [15, 16].

There are some factors which can enhance the danger of BF & injuries as macrosomia. Nasser in his case study reported the occurrence of the injuries at the time of birth as 7.70% in new births with an average weight of greater than 4500 grams at the time of birth [17]. Fatness of the mother with body mass index of more than 40 & dystocia of the shoulder are also the factors of risk in BF [18]. Cesarean section can decrease the risk of these problems in complicated cases. The extraction with vacuum & forceps apparatus have an association with the risks of BF [19, 20]. Very long or very less labor, abnormalities in the pelvic of mother & professional skillfulness can help in the occurrence of these complications [21, 22]. In this research work, 42.90% birth fractures happened without the acknowledgement of available risk factors. It is necessary to aware the parents that it is impossible to recognize these complications before delivery and these injuries healed perfectly in all the patients.

There was no BF in cesarean section. We were unable to find any association among the birth fractures and presentation of the breech. Majority of the births injuries happened at the time of presentation of the vertex, so the delivery through vagina is also the high risk factor as compared with the cesarean section. The ratio of the risks in the group of normal delivery through vagina was available as 0/27%.

CONCLUSION:

The occurrence of birth fractures was much lower in these health care centers as compared to the reported conclusion of other case studies. The most frequent birth fracture was the fracture of the clavicle and most of these complication occurred without the acknowledgement of the risk factors. We found that majority of the BF are preventable or irregular, but each attempt should be the outcome to identify the mothers & babies before delivery having high danger of complication. In such cases, cesarean operation should be the preference as a safe mode of the delivery.

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