BRACHIAL PLEXUS PALSY AMONG NEONATES IN BINT AL-HUDA TEACHING HOSPITAL . THI-QAR

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ABSTRACT

Background and Objective : The brachial plexus are injured mostly due to severe lateral traction of neck during delivery mainly in shoulder dystocia , large baby and prolonged labour .

Method : A prospective study was carried out on (26) cases of brachial plexus palsy . The information depend on clinical examination at nursery care unit and delivery room notes at Bint Al-Huda Maternity and Pediatric Teaching Hospital in Al-Nassirya city through out 2009.

Results : Brachial plexus palsy (BPP) is found in (1.5 per 1000 live birth) of total delivery and usually type Erb's palsy (80.8%) more than Klumpke (7.7%). Shoulder dystocia (38.8%) , Macrosomia (23 %) , Prolonged labour (15.3 %) were significant risk factors for BPP .
Male (53.8 %) affected little more than female (46.2 %) and right side (61.5 %) more affected than left side (38.5 %) .
Most cases of Erbs (76 %) improve with time opposite to that of Klumpke type (3.3 %) during the period of follow up for 6 months .

Conclusion : BPP still a problem in our overload delivery room . Well trained medical staff necessary beside education about risk factors of BPP .

INTRODUCTION

The brachial plexus forms a network of nerves that conduct signals that control the muscles of the shoulder , arm , elbow , wrist , hand and fingers [(1)] . The Mechanisms by which the brachial injury is most often attributed to severe lateral flexion of the neonate neck when the shoulder is stopped most often at the pubic bone during delivery , or downward pressure on the shoulder , therefore it is common that the upper portion of the plexus (C5-C7) to be stretched [(2)] . Injury to the (C5 – C6) roots is common and called (Erb's Duchenne palsy) , and if the lower roots (C8 – T1) are injured called (Klumpke palsy) [(3,4)] .

Factors associated with brachial plexus palsy include shoulder dystocia , breech presentation , high birth weight including infant of diabetic mother and prolonged labour [(5,6,7)] .

Brachial palsy is less common now that delivery techniques have improved , with incidence of less than 0.6 – 4.6 per 1000 live births [(8,9,10,11,12,13)] .

The infant with Erb's palsy loses the power to abduct the arm from the shoulder .

The characteristic position consist of adduction and internal rotation of the arm with pronation of the forearm so called waiter's tip posture and the moro reflex is absent . The power in the forearm and grasp are preserved and considered a favorable sign [(9,6,3)] .

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When the injury include the phrenic nerve alteration in diaphragmatic excursion may be observed. Klumpke paralysis is a rare produce a paralyzed hand and horner's sydrome if the sympathetic fibers of the 1st thoracic root are also injured [5, 12, 13, 14].

If the entire plexus is injured the arm and hand are flaccid with associated sensing deficit . Brachial plexus palsy should be differentiated from Cerebral injury , cervical spine injury dislocation or fractures of upper extremity . The physical finding of BPP are so unique so it is difficult to mistaken for other diagnosis [8,9]. Diagnosis can be undertaken by multiple modes of imaging by EMG , chest X-ray , real time u/s and MRI demonstrates nerve root rupture or avulsion [15, 16] . Treatment consists of partial immobilization and appropriate positioning to prevent the development of contracture after 1–2 week rest of affected limb . Caregivers should be instructed on how to handle baby and no traction of affected arm with no pressure under axilla[6, 11]. The type of treatment and the prognosis depend on the mechanism of injury and the number of nerve roots involved . The mildest injury to a peripheral nerve (neurapraxia) is due to edema and heals spontaneously within a few weeks. Axonotmesis is more severe and is due to nerve fiber disruption (neurotmesis). Infant should be closely monitored with active and passive exercise . [8, 17] If paralysis persist without improvement for 3 – 6 month , neuroplasty , neurolysis , end-to-end anastomosis and nerve grafting offer hope for partial recovery [18] . When associated with phrenic nerve palsy and diaphragmatic paralysis , there is more likelihood of need for surgery for recovery [19] .

PATIENT AND METHOD

A prospective study was carried out on (26) babies with brachial plexus injury born at Bint Al-Huda Maternity and Pediatric Teaching Hospital in Al-Nassirya city were examined at the nursery care unit during the period of study through out 2009 and full filling the following finding .

1. Inability to move the upper or lower arm and hand .
2. Absent moro reflex on the affected side.
3. Decreased grip on the affected side .

The type of BPP (Erb's palsy) versus (Klumpke) were determined and the possible risk factors were included from delivery room notes like shoulder dystocia, large baby , prolonged labour or assisted labour , with evaluation the chronic maternal illness like diabetis . Determination which side affected right or left and sex distribution also included .

X-ray of the affected side has been done to all cases to exclude any fractures or separation the head of humarus . All cases instructed strongly to be followed for assessment the improvement and education about the natural course of injury and so most our cases followed for 6 months .

RESULTS

Table(1) shows the incidence of BPP among all deliveries is 1.5 per 1000 live births .

Table(2) shows the majority of cases were Erb's palsy (80.8 %) versus Klumpke

From the table (3) it is clear that shoulder dystocia , macrosomia and prolonged labor were risk factors for BPP .

The table (4) shows that 14 babies were male (53.8 %) and 12 babies (46.2 %) were female Male to female ratio was 1.2 : 1 . This difference not so significant .

The table (5) shows that most common lesion (61.5 %) on the right side compare to that on the left side (38.5%) .

From the table (6) clear that most cases of Erbs palsy (76 %) improve with time , and only one case from Klumpke palsy improve , and no cases of combined lesion improve , 3 cases of Erbs palsy missed during the follow up period .

DISCUSSION

The result of the present study showed the incidence of BPP in Bint Al-Huda Maternity and Pediatric Teaching Hospital during the period of 2009 was (26) infants out of 17511 total deliveries (1.5 per 1000 live birth) . This little bit within the range (0.5 – 1.9 per 1000 live birth) that reported by Bar et al 2001 [8] . While it is exactly similar to that reported by Foad SL (2008) [12] . But Graham EM (1997) in his study report (1.0 per 1000 live birth) . [10]

From this review the incidence of BPP in our hospital near the upper limits of most published series inspite of high percentage of c/s (43.4 %) of total deliveries , that should reduce the incidence of birth trauma in general , this may be due to overload of delivery room or malpractice .

Most BPP cases were Erb's palsy (80.8 %) , this lower than that reported by Bar et al (2001) with (90 %) [8] , and higher than that reported by Ira Adams (2007) with (75 %) . This finding usual because the more traction affect the upper root when the head is pulled away from the shoulder during delivery . One case was bilateral Erb's paly .

Shoulder dystocia (38.3 %) , Macrosomia (23 %) , prolonged labour (15.3 %) and (7.7 %) for assisted labour are risk factors for occurance of BPP . This similar to that reported by McIntosh N . [6]

Shoulder dystocia (38.3%) consider the most common cause of BPP in our study , but Ira Admams (2007) found approximately (45 %) of BPP due to shoulder dystocia [9] , so it is little bit higher than our finding may be due to high no . of c/s in our hospital .

Male were more often affected (53.8 %) than female (46.2 %) , but it is not so significant , this finding also documented by Graham EM [10] .

BPP occur most frequently on the right side (61.5 %) versus to that on the left side (38.5 %) , this goes with that reported by Bar et al 2001[8] , and the cause mostly related to that most common delivery presentation is left occiput anterior vertex .

Most cases of Erb's palsy (76 %) improve with time , this percentage may be higher if we not missed (3) cases during the follow up period for 6 months . Most cases improve in the 1st few weeks . This finding goes with that reported by Ira Adams (2007) [9] . But some series reporting inicial recovery rate (75 – 95 %) [5,11] . And so the damage most likely due to neuropraxia .

RECOMMENDATION

1. Obstetrician and Pediatrician should be a ware about the risk factors for BPP.
2. Neonates with BPP need to be carefully assessed for any other complication .
3. Well trained delivery room medical staff is crucial .
4. The parents should know the natural course of the BPP .
5. Communication between the physician and the patient family is important and the parent should know the possibility of long term complication related to BPP .

TABLES

Table (1) Incidence of brachial plexus palsy

Total deliveries	BPP
17511	26 (0.15 %)

Table (2) Incidence of Erb's Versus Klumpke palsy

Erb's	Klumpke	Both	Total
21 (80.8) %	2 (7.7 %)	3 (11.5 %)	26

Table (3) The effect of risk factors on incidence of BPP .

Risk factors	No.
Shoulder dystocia	10 (38.5 %)
Macrosomia	6 (23 %)
Prolonged labour	4 (15.3 %)
Cephalo-pelvic disproportion	2 (7.7 %)
Forceps	2 (7.7 %)
No risk	2 (7.7 %)

Table (4) Sex distribution

Male	14 (53.8 %)
Female	12 (46.2 %)
Total	26

Table (5) Right versus left lesion

Rt.	16 (61.5 %)
lt.	10 (38.5 %)
Total	26

Table (6) 6 months follow-up improvement .

Lesion	No.	%
Erbs	16	76 %
Klumpke	1	3.3 %
Both	Nil	

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شلل الظفيرة العضدية عند الطفل الوليد في مستشفى بنت الهدى التعليمي في محافظة ذي قار

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الخلاصة :-

تم ادخال (٢٦) حالة مصابة بشلل الظفيرة العضدية بدراسة اجريت في مستشفى بنت الهدى التعليمي في مدينة الناصرية حيث تمت الدراسة خلال عام ٢٠٠٩ حيث كانت نسبة حدوث الاصابة حوالي 1.5 لكل ١٠٠٠ ولادة حية . وكان نوع شلل ارب حوالي (80.8%) وهي اكثر من شلل كلمبك (7.7%) . وكانت عوامل الخطورة لحدوث الشلل هي انحباس كتف الوليد تحت عظام حوض الام اثناء الولادة بنسبة (38.8%) ، ولكبر حجم الوليد (23%) ، اما طول فترة الولادة فكان تأثيره حوالي (15.3%) .

نسبة اصابة الوليد الذكر هي (53.8%) وهي اكثر من الاناث حيث ان نسبة اصابة الاناث هي (46.2%) لكنها غير مهمة احصائيا . الجانب الايمن للطفل الوليد اكثر عرضة للاصابة وبنسبة (61.5%) من الجانب الايسر (38.5%) .

أغلب الحالات المسجلة لشلل ارب (٧٦%) تتعافى مع الوقت اذا ما قورنت بشلل كلمبك (3.5%) خلال فترة المتابعة التي استمرت لـ (٦) أشهر .

شلل الظفيرة العضدية لا يزال مشكلة في صالات الولادة المزدحمة لذلك وجود فريق طبي مدرب ضروري جدا مع التنبؤ لوجود عوامل الخطورة المسببة للشلل .

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