Congenital Dislocation Of The Hip In Newborns Of Mashhad City

G Mamouri, F Khatami, A Hamedi

Citation

Abstract
Congenital dislocation of the hip was the term formerly used for what is now called DDH (Developmental dysplasia of the hip). This study was intended to investigate the prevalence of CDH in Mashhad, Iran.

INTRODUCTION
Congenital dislocation of the hip was the term formerly used for what is now called DDH (Developmental dysplasia of the hip).

DDH is the most common neonatal hip disorder. Early diagnosis and appropriate treatment in the neonatal period produces a better functional outcome than would be achieved by diagnosis and treatment at a later stage. Detection of congenital dislocation of the hip by clinical examination was described for the first time in 1937 by Ortolani. Today Ortolani and Barlow's tests are the basis of clinical screening for DDH in newborns. After first screening, repeated hip examination in the first year of life during health examination in spite of a normal examination at birth especially when there is associated risk factor, is useful in diagnosis of late CDH. This study was intended to find out the prevalence of CDH in Mashhad, Iran.

MATERIALS AND METHODS
In a prospective study over 9 months, from March 1995 until December 1996, a total number of 6576 newborns were examined in four hospitals (Ghaem, Emam Housein , Emam Hadi, Musabne Jaafr).

Each newborn was examined during the first 48h after birth by one of the authors. The diagnosis of those infants with suspected abnormal hips was based on Ortolani's test, Barlow's test, or limitation of hip abduction. For all infants with unstable joints, data was collected regarding maternal history, delivery type, birth order, associated abnormalities or positive family history. If a clunk was felt (displacement of femoral head to inside acetabulum on Ortolani test), then for accurate diagnosis sonography was taken and infants referred to an orthopedic surgeon. If click was felt at first examination, triple diapers were advised and the infant examined again at two and four weeks. If there was any persistent click or suspected abnormality, sonography was done and infants with positive results referred to an orthopedist.

RESULTS
During the study 6575 newborns were examined in the first 2 days of life. These were 3440 (53%) males and 3136 (47%) females. In 197 infants (3%) cluncks or clicks were felt on the initial examination. From these infants with unstable hip joints there were 110 (55.9%) males and 87 (44%) females. Unstable hip was bilateral in 39% cases; the left hip was involved in 34% and the right side on 27% cases. Teratologic CDH was observed in one female infant. This infant had associated malformations, (hydrocephalous, myelomeningocele), and was excluded from our study. A clunk was felt at first examination in 8 infants and sonography confirmed CDH in all of them. CDH was diagnosed in two other infant on follow up exam at later neonatal period.

Figure 1

Table 1: Frequency of DDH in relation to maternal age

<table>
<thead>
<tr>
<th>Maternal age</th>
<th>Abnormal hips</th>
<th>CDH</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20</td>
<td>48</td>
<td>34</td>
</tr>
<tr>
<td>21-25</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>26-30</td>
<td>54</td>
<td>32</td>
</tr>
<tr>
<td>31-35</td>
<td>110</td>
<td>8.5</td>
</tr>
<tr>
<td>&gt;35</td>
<td>18</td>
<td>0.1</td>
</tr>
<tr>
<td>Total</td>
<td>197</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maternal age</th>
<th>Percent</th>
<th>CDH</th>
</tr>
</thead>
</table>
| <20          | 11.0%   | 18.5%
| 21-25        | 25.3%   | 20.1%
| 26-30        | 32.4%   | 19.1%
| 31-35        | 8.5%    | 15.5%
| >35          | 0.1%    | 7%  |
| Total        | 100%    | 100%|
From 10 cases with CDH the both hips were involved in 6 cases, the left side in 3 infants and right side only in one infant. Among 197 infants with unstable hips, there were 19 premature, 170 term and 8 post term. 21 infants were low birth weigh (LBW). The methods of delivery in the affected infants were vaginal delivery in 160 cases and cesarean section in 37 infants. Breech presentation was seen in 11/197 infants, with no infants complicated by oligohydramnious. Relation of birth order with abnormal hips and age of mothers are shown in tables 1 and 2. There was a significant correlation between first pregnancy and CDH (P<0.05). The highest rate was found in those mothers between 25-30 years. Other associated finding in newborns with CDH was shown in table 3 and 4.

**DISCUSSION**

DDH encompasses a wide spectrum of hip problems, for instance abnormalities of the acetabulum, femoral head and neck, dislocated hip, an dislocatable hip. It may be recognized radiologically in clinically apparently normal hips (1,2). The etiology of DDH is multifactorial: genetic, hormonal and mechanical factors are involved (11,12).

Teratogenic dislocation occurs early in uterus and is associated with malformation of pelvis and femur. In this form, the dislocated hip cannot be reduced by ortolani maneuver. The femoral head grows disproportionately faster than surrounding cartilage, so that at birth the femoral head is less than 50% covered. Within a few weeks after birth the acetabular cartilage develops more rapidly than the femoral head, resulting in progressively increased coverage. Therefore, during the final trimester and the first few months after birth, the hip is at highest risk for DDH(9).

The prevalence of DDH varies according to racial and geographic parameters and is greater in whites than blacks.

The incidence of hip dislocation and abnormal hip in neonates is approximately 1.3 per 1000 live birth for CDH and 12 per 1000 for later.

Rosendhle reported that 1.02 to 2% of all neonates, have clinically unstable hips at birth.

It has been estimated that only 10% of these babies will have dislocated hips in later childhood if left untreated, while another 10% will show evidence of dysplasia (13). Dunn evaluated 23,000 newborns, and reported that 1.9% of all neonates have clinical unstable hip at birth(9).
Hip instability at birth is the important method for detection of weight both reduced the risk of DDH (different from other reports. Preterm birth and low birth bilateral. True CDH was bilateral in 60%. This result is unstable hips, 34% on the left side, 27% right side and 39% bilateral in 20-24% less than twice the risk of DDH ,compared with mothers of authors (unstable hips has been recognized by many observers of infants with true CDH.. The increased incidence of DDH in breech delivery is well recognized by many observers (unstable hips and 70% of CDH were occurred in females. With these risk factors up to 25% infants had unstable hips in one study (unstable hips are more commonly than the right. DDH is occurred in mothers with 5 or more deliveries. The left side parity 2 or more (unstable hips has been no consistent findings regarding month or season to 25% infants had unstable hips in one study ). There have been no consistent findings regarding month or season of births, maternal age or birth weight (unstable hips is generally successful. In cases with a clicky hip or an equivocal exam, evaluation should be done with ultrasound at 2 to 6 weeks of age (unstable hips). Some authors believe that swaddling may increased the risk of CDH but there was not any correlation between infant wrapping and DDH (unstable hips). We advised triple diaper for neonates with a simple click and normal sonography and repeated examination at 4 weeks.

**CONCLUSION**

Congenital dislocation of the hip (or DDH) must be regarded as an important health problem, leading to pain, loss of mobility and limb shortening. Unstable hips can be diagnosed in newborns with simple methods. Most clicks seen in early neonatal period disappears at later neonatal period, and some babies with dysplasia are normal at birth and may be diagnosed in infancy or later. In this study frequency of CDH was similar to other reports.

**References**

9. Donaldson-GS,Feinstein-KKA:Imaging of the developmental dysplasia of the hip,Pediat-
17. Rosendhle-K, Markestand OT: Ultrasound screening for developmental dysplasia of the hip in the neonate, the effect on the treatment and prevalence of late cases pediat.1994, 94:47-51.
Author Information

G.H. Mamouri
Ghaem Hospital, Mashhad University of Medical Science

F. Khatami
Ghaem Hospital, Mashhad University of Medical Science

A.B. Hamedi
Ghaem Hospital, Mashhad University of Medical Science