Audit of management and prognosis of isolated mild Ventriculomegaly in Aneurin Bevan University Health Board (ABUHB) from 2003 to 2012

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BACKGROUND

The measurement of atrial width of lateral cerebral ventricles is recommended as part of routine anomaly scan (AIUM 2003: ISUOG 2007). Ventriculomegaly is defined as an axial diameter greater than 10mm across the atrium of posterior or anterior horn of lateral ventricles at any gestation. Some ultrasonographers use a separation of greater than 3mm but less than 8mm of the choroid plexus from the medial wall of lateral ventricle to define this anomaly1.

The main causes of fetal ventriculomegaly are aqueductal stenosis, Chiari II malformation, Dandy-Walker complex and agenesis of corpus callosum2. Isolated Mild Ventriculomegaly (IMV) is defined as atrial measurements between 10 - 14.9mm with no associated anomalies and affects 0.15-0.7% of pregnancies3. The developmental prognosis for children with IMV seems to be better than that described for ventriculomegaly associated with other anomalies4. But the risk of developmental delay is still unclear and presents a challenge to physicians for managing and counselling prospective parents.

This audit evaluates the prenatal management and prognosis of IMV and it is the first study on ventriculomegaly in Wales.

METHOD

63 cases of ventriculomegaly were reported from Aneurin Bevan University Health Board (ABUHB) to CARIS database with Hydrocephalus from 2003 to 2012.

35 of these cases were identified as IMV, while the other 28 cases were either severe ventriculomegaly or had other associated anomalies at initial scan. 30 case notes of the 35 cases were reviewed. 1 woman moved out of the area at 28 weeks and hence was lost to follow-up, and 2 women delivered in different hospitals.

RESULTS

28 cases were diagnosed at second trimester anomaly scan, while one patient booked late at 28 weeks and in another the anomaly developed later in pregnancy.

<table>
<thead>
<tr>
<th>N = 30</th>
<th>Yes</th>
<th>No</th>
<th>Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>TORCH Screen</td>
<td>All (100%)</td>
<td>-</td>
<td>None</td>
</tr>
<tr>
<td>Amniocentesis/ Karyotyping</td>
<td>9 (30%)</td>
<td>21</td>
<td>None</td>
</tr>
<tr>
<td>Repeat/ Serial growth scan</td>
<td>All</td>
<td>-</td>
<td>IMV resolved in 18 cases</td>
</tr>
<tr>
<td>MRI</td>
<td>11 (36.6%)</td>
<td>19</td>
<td>IVM confirmed in all cases/ no other anomalies detected</td>
</tr>
</tbody>
</table>

Table 1: Investigations conducted and outcome of cases of IMV

All women were screened for TORCH infection, and were found to be negative for current infections. All women were offered amniocentesis, only 9 (30%) of them accepted and all 9 were of normal karyotype. None of the women were screened for haematological abnormalities.

Two women underwent termination due to progression of ventriculomegaly.

Among 18 women (60%) IMV resolved spontaneously on subsequent scans antenatally. It is difficult to assess the prognosis of these babies postnatally, as they did not have routine cranial ultrasound or neuro-developmental assessment.

7 of the cases with persistent IMV had cranial ultrasound at about 3 months postnatally. Of these, 4 babies were found to have cranial abnormalities-

- 1st baby had subgialid hydromal/ CSF leak,
- 2nd baby had thin corpus callosum with large ventricles and large extra axial space,
- 3rd baby had a 3mm cyst on the right caudothalamic groove and Corpus callosum was not well developed posteriorly and
- 4th baby had periventricular leucomalacia

DISCUSSIONS

The aetiology of IMV is generally unknown and in spite of its low prevalence it presents a diagnostic dilemma as it can be an apparently benign incidental finding (normal physiologic variant) or associated with chromosomal abnormalities, congenital fetal infections, cerebral haemorrhage and other cerebral or extra-cerebral abnormalities. In addition, it carries an increased risk of cerebral maldevelopment and delayed neurological development leading to psychomotor delay5.

Devaseelan et al., in a systematic review of IMV found the overall rate of incidence of Chromosomal anomaly and trisomy 21 in IMV was up to 5%, and they reported an overall rate of positive infection screen as 1.5%6. IMV has a good prognosis with a survival rate of 97% and good neurological developmental in 90% of the cases when not associated with other conditions7.

The risk of developmental delay still exists and the current medical knowledge has limited answers to questions regarding future development of children who are diagnosed with isolated ventriculomegaly

CONCLUSIONS

In our study all routine investigations including TORCH and karyotype were normal. 60% of the cases of mild isolated ventriculomegaly had resolved in-utero. This study has highlighted the lack of uniform policy in neonatal assessment.

There are limitations to this study as it is a retrospective model, has a small sample size and does not include the neonatal follow-up.

REFERENCES