MILD VENTRICULOMEGALY:
results at our center

Keywords

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Authors

Beatriz Navarro Santana, MD[1], Miguel Alvaro Navidad, MD[2], Cristina Martinez Leocadio, MD[2], Cristina Marcos Santos, MD[2], Lidia Perez Garcia, MD[2], Javier Plaza Arranz, MD[2].

[1] Department of Obstetrics and Gynaecology. Fundación Jiménez Díaz, Madrid, España.
[2] Department of Obstetrics and Gynaecology. Fundación Jiménez Díaz, Madrid, España.

Corresponding author

Beatriz Navarro Santana. Fundación Jiménez Díaz, Av. Reyes Católicos nº2, Madrid (28015) España. Telephone: +34 680 954 190. Email: *bea _ 0904@hotmail.com*

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None

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None

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ABSTRACT

objective
To evaluate the clinical significance of mild ventriculomegaly and to identify associated anomalies.

material and methods
The data obtained were detected in week 16 to 27 of gestation, from 2011 to 2015, by 4 experts sonographers.

results
46 ventriculomegalies were detected of 10427 gestations: 41 (89%) mild, 3 (6%) moderate, 1 (2%) severe and 1 (2%) was diagnosed postnatally.
Regarding the mild ventriculomegalies:
- 1 (2%) progressed to severe.
- 12 (29%) occurred in men and 29 (70%) in women.
- 11 (26%) were associated with brain abnormalities.
- 8 (19%) were associated with extracerebral abnormalities.
- 1 (2%) was associated with altered karyotype.
- 2 (4%) were associated with cytomegalovirus infection.
- The 83% were resolved intrauterine.
- The Incidence of false negatives was 2%. 4% was associated with agenesis of the corpus callosum postnatal.
- 2 (4%) were associated with psychomotor retardation.
- All (100%) received normal schooling, and one (2%) early care and rehabilitation.

conclusions
Mild ventriculomegaly often resolves in utero. The mild ventriculomegaly which is progressive and associated with other malformations or positive serological tests is predictive of adverse neonatal outcomes.

INTRODUCTION

Mild ventriculomegaly (10-15 mm) represents a frequent dilemma in perinatal management and counseling for parents. The present study aims to evaluate the clinical significance of mild ventriculomegaly and to identify associated anomalies.

METHODS

The data obtained from mild ventriculomegalies were detected from weeks 16 to 27 of gestation, retrospectively, through the prenatal ultrasounds carried out in the Hospital Fundación Jiménez Díaz from 2011 to 2015. We collected information of the measurement of the lateral ventricles, intrauterine progression or not, bilaterally or not, associated cerebral and extracerebral anomalies, chromosomopathies, TORCH, Arrays, fetal percentile and therapeutic abortion. Also, data were collected on postnatal outcomes: postnatal brain ultrasounds, associated psychomotor retardation, microcephaly, other cerebral and extracerebral malformations, associated cerebral palsy, normal schooling or special education, attendance at early rehabilitation centers and the need of posterior rehabilitation.

Ultrasound and amniocentesis were performed by 4 expert sonographers. The atrium of the lateral ventricles was measured at the level of the glomus of the choroid plexus. The callipers were positioned correctly at the inner edge at its widest part and aligned perpendicular to the long axis of the ventricle. The postnatal results were followed up for four years, by experts neuropediatricians of the pediatric department of the Hospital Fundación Jiménez Díaz.

The statistical program that has been used is R version 3.1.2.

RESULTS

Out of a total of 10427 pregnancies, 46 ventriculomegalies were detected. Of these, 41 (89%) were mild, 3 (6%) moderate, 1 (2%) severe and 1 (2%) was diagnosed postnatally. Of these, 42 (91%) were detected at week 20 of gestation, 1 (2%) at week 24, 1 (2%) at week 26 and another (2%) at week 27 of gestation.

Regarding the mild ventriculomegalies:

- 1 (2%) progressed to severe.
- 12 (29%) occurred in men and 29 (70%) in women.
- 19 (46%) were bilateral and the rest (53%) unilateral.
- 11 (26%) were associated with brain abnormalities: 4 (9%) with choroid plexus cysts, 1 (2%) with spina bifida, 1 (2%) with agenesis of corpus callosum, 3 (7%) with choroidal plexus papillomas, 1 (2%) with megacisterna magna and 1 (2%) with periventricular cyst in anterior horn.
- 8 (19%) were associated with extracerebral anomalies: 4 (9%) were associated with pelvic ectasia, 1 (2%) to placental mosaicism, 1 (2%) with an enlarged gastric chamber, 1 (2%) with Dextrocardia with levoapex, gastric chamber in the thorax and ambiguous external genitalia and 1 (2%) with intestinal obstruction.
- 1 (2%) was associated with altered karyotype (inversion of chromosome 21) and the rest were with normal karyotype.
- 2 (4%) were associated with cytomegalovirus infection.
- 4 (9%) women performed therapeutic abortion due to associated abnormalities (spina bifida, CMV and diaphragmatic hernia associated with megacisterna magna).
- All (100%) newborns had normal weights and Apgar test at birth >8/9.
- Brain ultrasound (18) was performed with an average age of the month of birth and of these only 3 (16%) confirmed the intrauterine diagnosis of ventriculomegaly. This means that the remaining (83%) mild ventriculomegalies were resolved intrauterine.

With regard to malformations of the central nervous system confirmed at birth: The agenesis of corpus callosum was confirmed and another agenesis of corpus callosum was postnatally diagnosed. Then, the incidence of false negatives (prevalence of postnatal alterations in the group of ventriculomegalias classified as isolated) in prenatal diagnostic tests was 2%. In addition, 4% was associated with postnatal corpus callosum agenesis.

- 2 (4%) were associated with psychomotor retardation (language delay and communication): the patient who was diagnosed with agenesis of the postnatal corpus callosum and one patient who was diagnosed as isolated. The other agenesis of corpus callosum has remained asymptomatic until today.
- None attended with cerebral palsy, or microcephaly.
- All (100%) received normal schooling, and one (2%) received early care and rehabilitation which was the corpus callosum agenesis which was described above.

DISCUSSION

Compared to publish data, it has been shown that 16% of mild ventriculomegalies are progressive (1), which differs from our 2% incidence of progression. Eighty three percent of intrauterine regression has been reported (2), which agrees with our 83% rate. The ratio of chromosomal abnormalities is 2.8%, which closely resembles our 2% result (1). Ventriculomegalies have been found to be associated with CMV, TXP and rubella. In fact, the incidence of CMV as a cause of ventriculomegaly varies from 0 to 5% of cases (3, 4); in our study the incidence was also similar: 4%. A male predominance of 1.7% has been found, but this data has not been shown to be statistically significant (1). In our case, there is a predominance of females.

In our study, 2% of isolated mild ventriculomegaly were associated with delayed psychomotor development; however the literature reports a 7.9% of neurodevelopmental delay (5). They are associated with other anomalies in 47.5% of cases (6). More than 25% of mild ventriculomegalies are associated with partial agenesis of the corpus callosum and 15% are associated with hypogenesis of the corpus callosum (7). In our study, 45% of cases had associated anomalies on prenatal ultrasound and 4% were associated with agenesis of the corpus callosum on postnatal ultrasound. In addition, we had a false negative rate of 2%, which contrasts with the 7.4% reported in the literature (4). No studies were found to talk about whether children were in normal schooling or whether they were part of rehabilitation or early childhood education programs.

CONCLUSSIONS

Mild ventriculomegaly is often resolved intrautero. Mild progressive ventriculomegaly which is associated with other malformations or positive serologies is predictive of adverse neonatal outcomes. However, in 98% of the patients, isolated mild ventriculomegaly does not involve any problems in the neonate or in his psychomotor development and his subsequent schooling.

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