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Opinion

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Counseling in fetal medicine: update on mild and moderate fetal ventriculomegaly

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Introduction

Fetal ventriculomegaly (VM) is the most common central nervous system (CNS) anomaly diagnosed antenatally. VM is not a specific disease, but rather a symptom common to different conditions affecting the CNS. VM frequently represents a clinical dilemma, as it can be associated with a large spectrum of conditions with different impacts on postnatal neurodevelopmental performance, but might also represent a normal variant, usually when isolated and associated with normal karyotype and negative infectious screening[1–6]. This complicates both antenatal diagnostic workup and parental counseling.

More than a decade ago, a comprehensive review was published, which provided evidence-based answers to common clinical questions about isolated mild fetal VM, with the aim of supporting obstetricians and parents to understand the implications of the condition[7]. However, in recent years, several studies have evaluated different aspects of fetal VM, including the diagnostic yield of chromosomal microarray (CMA), the role of ultrasound and magnetic resonance imaging (MRI) to better characterize associated abnormalities, and the short- and long-term neurodevelopmental outcome of affected individuals according to severity of dilatation. This research has improved our overall understanding of VM and therefore refined the accuracy of antenatal diagnosis and the reliability of prognostic counseling.

Methods

We collected a list of common clinical questions emerging in our daily practice as fetal medicine consultants working at university hospital referral centers. A systematic search strategy was performed in which MEDLINE, EMBASE, CINAHL and Web of Sciences databases were searched electronically from inception to October 2022, utilizing combinations of the relevant medical subject heading (MeSH) terms, keywords and word variants for 'ventriculomegaly', 'isolated', 'mild', 'moderate', 'fetal', 'prenatal', 'neurosonography', 'ultrasound', 'magnetic resonance imaging', 'neurodevelopment' and 'outcome'. The search and selection criteria were restricted to English language. Reference lists of relevant articles and reviews were searched manually for additional reports. Studies including cases with additional fetal anomalies and those focusing exclusively on severe VM were excluded, as these were beyond the scope of this review.

The quality of the evidence was assessed using the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) guidelines[8]. Thus, the quality of evidence was classified as one of four levels: high (further research is very unlikely to change our confidence in the estimate of effect); moderate (further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate); low (further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate); and very low (any estimate of effect is very uncertain)[8]. The results of the quality assessment for each evidence-based answer are shown in Table 1.

Clinical questions

What is fetal ventriculomegaly?

Fetal VM includes a large spectrum of conditions characterized by the dilatation of the lateral ventricles of the brain to a diameter of ≥ 10 mm, with or without dilatation of the third or fourth ventricles. The cut-offs for the degree of dilatation used to define the severity of fetal VM are heterogeneous: some authors have classified the condition as mild (10–14.9 mm) and severe (≥ 15 mm), whilst others differentiate between mild (10–12.9 mm), moderate (13–14.9 mm) and severe (≥ 15 mm)[9] (Figure 1). This latter classification is used most commonly due to a stronger association with postnatal outcome, as the risk of additional anomalies and neurodevelopmental disorders increases with increasing dilatation[9].

VM is the most common brain anomaly diagnosed during fetal life. The reported prevalence for mild VM