1/2

Delivery

see Gene delivery

Locoregional drug delivery

Delivery, in childbirth

Pregnancy and delivery in women with shunted hydrocephalus (a condition managed by the placement of a ventriculoperitoneal (VP) or ventriculoatrial (VA) shunt to drain excess cerebrospinal fluid) generally proceed safely with appropriate management. However, certain considerations are important:

Key Considerations for Safety: 1. Monitoring Shunt Function:

1. The risk of shunt malfunction or infection remains present throughout pregnancy. Symptoms of shunt malfunction, such as headaches, nausea, or vision changes, may be mistaken for normal pregnancy-related changes. Close neurological follow-up is recommended.

2. Hydrocephalus and Increased Intracranial Pressure:

1. Shunt malfunction could result in increased intracranial pressure (ICP), a serious condition that requires urgent intervention. Pregnant women with shunted hydrocephalus should be educated on recognizing signs of elevated ICP and seek prompt medical attention if these occur.

3. Delivery Method:

- 1. **Vaginal delivery** is generally considered safe in most cases. The strain of labor does not typically affect shunt function, and no evidence pushing during labor causes shunt malfunctions.
- 2. **Cesarean section (C-section)** may be recommended in some cases where complications arise, but it is not routinely required for women with shunted hydrocephalus.

4. Use of Anesthesia:

1. Epidural anesthesia is usually safe, but anesthesiologists should be informed about the presence of a shunt to adjust anesthetic management as needed. In rare cases, a shunt in the lumbar region might impact the decision to use an epidural.

5. Multidisciplinary Care:

1. Management during pregnancy should involve a team including obstetricians, neurologists or neurosurgeons, and anesthesiologists. This ensures the shunt's functionality is continuously monitored, and any concerns are addressed quickly.

Conclusion: With appropriate multidisciplinary care and close monitoring of shunt function, women with shunted hydrocephalus can generally have safe pregnancies and deliveries.

Cutaneous branches of the femoral nerve may be injured during labor and/or delivery ¹⁾ (most are transient)

Controversy exists regarding the optimal mode of delivery for fetuses with open neural tube defects.

To compare neurological outcomes among infants with open neural tube defects who underwent vaginal compared to caesarean delivery.

Electronic databases MEDLINE, EMBASE, Scopus, and Clinicaltrials. gov were searched from inception to November 2017.

Eligible studies included observational or randomised studies comparing vaginal and caesarean delivery in pregnancies with fetal open neural tube defects who did not undergo prenatal repair.

Two reviewers independently reviewed abstracts and full text articles. Outcomes were compared between vaginal and caesarean delivery and prelabour caesarean versus labour. The primary outcome was motor-anatomic level difference. Secondary outcomes included shunt requirement, sac disruption, meningitis, and ambulation at 2 years. Meta-analysis was performed and mean difference or odds ratios with 95% confidence interval calculated.

Of 201 abstracts identified in the primary search, 9 studies (672 women) met eligibility criteria. Comparing vaginal and caesarean delivery, there was no significant difference in motor-anatomic level difference (mean difference -0.10, 95% CI -0.58-0.38; I2 =57%). The vaginal delivery group was less likely to require a shunt or have sac disruption (OR 0.37, 95% CI 0.14-0.95 and OR 0.46, 95% CI 0.23-0.90, respectively). Comparisons by prelabour caesarean versus labour showed no significant difference in motor-anatomic level difference (OR 1.29, 95% CI -0.63-3.21) or ambulation at 2 years (OR 2.13, 95% CI 0.35-13.12).

Caesarean delivery was not associated with improved neurological outcomes among fetuses with open neural tube defects $^{2)}$.

1)

O'Donnell D, Rottman R, Kotelko D, et al. Incidence of Maternal Postpartum Neurologic Dysfunction. Anesthesiology. 1994; 81

2)

Tolcher MC, Shazly SA, Shamshirsaz AA, Whitehead WE, Espinoza J, Vidaeff AC, Belfort MA, Nassr AA. Neurological outcomes by mode of delivery for fetuses with open neural tube defects: A systematic review and meta-analysis. BJOG. 2018 Jun 20. doi: 10.1111/1471-0528.15342. [Epub ahead of print] PubMed PMID: 29924919.

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