Approach to a Parturient with Arnold Chiari Malformation: A Team Controversy

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Introduction

- Arnold Chiari Malformation (ACM) is characterized by displacement of cerebellar tonsils below the foramen magnum, with risk of cerebral herniation.
- Labor increases risk of complications because of the acute increase in intracranial pressure (ICP).
- **Literature isn't consensual in the anesthetic management in parturients with non-surgically corrected ACM.¹**

Case Report

- Pregnant woman, 3yo, 70kg, ASA II, GIIPI.
- In active phase of labor, **without previous evaluation by an Anesthesiologist.**
- Prior to pregnancy, a CT scan due to occipital headaches showed **displacement of the cerebellar tonsils.**
- **No further evaluation was performed.**

Figure A – Obliteration of cerebrospinal fluid spaces at the foramen magnum

Figure B - Downward displacement of cerebellar tonsils at C1-C2

Discussion

- Evading elevation of ICP or changes in cranio-spinal pressure gradients must be considered.²
- **Hyperflexion or hyperextension of the neck should be avoided** during airway approach.³
- Patients with minimal and asymptomatic cerebellar descent, the **neuroaxis approach may be reasonable.¹**
- **GA allows more thorough hemodynamic control** using invasive ventilation, minimizing sudden increases in ICP.²

Learning Points

- The challenge in the anesthetic approach to parturients with ACM is to **avoid variations in ICP.**
- The **airway** may be an additional challenge, requiring **careful positioning** and **minimization of stimuli.**
- The evaluation of parturients with ACM should be done by a **multidisciplinary team** involving the Obstetrician, the Anesthesiologist and the Neurosurgeon.

1 - Surg Neurol Int. 2017; 8:10.

2 - Anesth Pain Med 2012; 7:166-169.

3 - Childs Nerv Syst. 2016; 32(3):527-30