Regional anesthesia for C-section in parturient with congenital heart disease (CHD) and implantable cardioverter defibrillator (ICD): a case report.

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INTRODUCTION

The **increased survival of patients with congenital heart disease**, presents us more often with parturient women with this type of condition. It is important to **assess the severity of the disease** as well as the **clinical situation** of the patient by a **multidisciplinary team** to choose the **best strategy for the development of pregnancy and delivery**, as well as the optimal **anesthetic attitude**¹.

DESCRIPTION

We present a 33 year-old pregnant woman, **bicorial-biamniotic twin in buttocks the first twin**, with a history of congenital heart disease (**transposition of the great vessels surgically corrected**). Four years ago she suffered a witnessed extrahospital **cardiac arrest** (first rythm VF recovered). **ICD placement** was indicated for secondary prevention.

- She maintained treatment with **bisoprolol 1.25mg / 12h and aspirin 100mg / 24h**.
- Cardiac auscultation highlights are an ejective murmur and marked reinforcement of the 2nd noise. No edema or signs of congestion are present. **Monthly controls** are carried out by **cardiology and obstetrics** as well as fetal echocardiographic control.
- **ECG**: SR at 70 bpm, wide QRS with BRDHH morphology and right axis.
- **Echocardiogram**: shows **akinesia of the basal half of the septum with anomalous movement of the rest of the interventricular septum** with **left ventricular systolic function preserved**. Atrioventricular structures as expected after previous Rastelli surgery. . RV slightly dilated, hypertrophic with global systolic function preserved.

- After assessment by cardiology, obstetrics, anesthesiology and neonatology services, a **c-section was scheduled for week 36**. **Aspirin was discontinued one week before and corticosteroids were prescribed**. **ICD was preoperatively reprogrammed** as well as we accessed the left radial artery for invasive monitoring of blood pressure (IBP). Two 18G peripheral venous accesses were also chatheterized.
- The patient is monitored with ECG, IB , saturimeter and **combined regional anesthesia** is performed: epidural catheter is placed at level L2-L3 and spinal anesthesia at level L4-L5 with 10mg of hyperbaric 0.5% bupivacaine and 10mcg of fentanyl.
- A total of 400cc of crystalloids and 400cc of colloids were administered. 50mg of Ranitidine was prescribed as broncoaspiration prophylaxis along with antibiotic prophylaxis with 2g of cefazolin..
- The c-section procedure was uneventful. Afterwards, she was transferred to the recovery unit where the **ICD was reprogrammed** and remained **hemodynamically stable without arrhythmogenic episodes**.

DISCUSSION

- In the western world, **congenital heart disease is the most frequent cardiovascular disorder in pregnancy (up to 82% of cases)**, with shunt-type lesions being predominant (up to 65%).
- An adequate evaluation of the pregnant woman is essential: **functional class**, in addition to all the **complementary tests**.
 - **Corrected or no-risk heart disease**, spontaneous vaginal delivery
 - **High risk cases or in syndromes such as Marfan's with an aortic diameter of over 45mm**. c-section
 - **Arrhythmias** are the **most frequent cardiac complications** during pregnancy in patients with or without structural pathology. Guidelines recommend **continuing with beta-blocker**². If we need to use a vasoconstrictor during the procedure, **phenylephrine** will be the choice.
 - **ICDs** during pregnancy has—demonstrated to be **safe**, without increasing the risk of complications. If they occur cardiac pathology.
 - We decided to use a **combined regional anesthesia** considering the patient's risk-benefit. Depending on the type of heart disease, we will choose **general anesthesia** (high risk of arrhythmias it will be easier to defibrillate) or **regional** (we can preserve the cardiac function with a controlled regional anesthesia).
 - It is also important to maintain **adequate postoperative control** to detect any complication that may arise: worsening of the functional class and right ventricle function impairment, these don't rule out the appearance of purely obstetric complications such preeclampsia.
 - Regarding **fetal complications**, low birth weight and premature delivery can be highlighted. However, these complications are not as frequent as we could initially expect, moreover in patients with close clinical follow up and adequate pharmacological treatment.
 - It is important to maintain an **adequate analgesic control, thromboembolic prophylaxis and fluid balance therapy**.

Ecocardiogram images during pregnancy.

CONCLUSIONS

Patients with congenital heart disease and ICD implantation for arrhythmias are patients whose **delivery plan must be individualized**. If the **baseline heart disease is corrected and the patient is clinically asymptomatic**, the chances are that a natural **vaginal delivery may take place**.

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 2. Regitz-Zagrosek V, Blomstrom Lundqvist C, Borghi C, et al. ESC Committee for Practice Guidelines ESC Guidelines on the management of cardiovascular diseases during pregnancy: the Task Force on the Management of Cardiovascular Diseases during Pregnancy of the European Society of Cardiology (ESC). . Eur Heart J 2011;32:3147–97