Vargas Bastos Miranda, Reinaldo; de Araújo Miranda, César; Ferreira Pereira, Renata Vivian; de Souza Hagui, Camila; Fonseca Uehara, Karina
Anestesia geral com remifentanil para cesariana em paciente com miocardiopatia periparto.
Faculdade de Medicina de Jundiaí
São Paulo, Brasil

Disponível em: http://www.redalyc.org/articulo.oa?id=243224987007
Anestesia geral com remifentanil para cesariana em paciente com miocardiopatia periparto.

General anesthesia with remifentanil to caesarean section in patient with peripartum myocardopathy.

Palavras-chave: obstetricia; cardiopatia; anestesia geral.
Key words: obstetrics; heart disease; general anesthesia.

Reinaldo Vargas Bastos Miranda¹
César de Araújo Miranda²
Renata Vivian Ferreira Pereira³
Camila de Souza Haqui³
Karina Fonseca Uehara³

¹ TSA, professor auxiliar da Disciplina de Anestesiologia da Faculdade de Medicina de Jundiaí (FMJ), co-responsável do centro de ensino e treinamento (CET) em Anestesiologia da Faculdade de Medicina de Jundiaí (FMJ), Jundiaí, São Paulo, Brasil.
² TEA, professor voluntário da Disciplina de Anestesiologia da FMJ, instrutor do CET de Anestesiologia da Faculdade de Medicina de Jundiaí, Jundiaí, São Paulo, Brasil.
³ Residente do terceiro ano do CET de Anestesiologia da FMJ, Jundiaí, São Paulo, Brasil.

Autor principal e Endereço:
Reinaldo Vargas Bastos Miranda. Rua: Ernestina de C. Marcondes, 47 - Parque da Represa, Jundiaí, São Paulo, Brasil - CEP: 13214-554 - e-mail: senseixxxi@yahoo.com.br

Não existe conflito de interesses.
Artigo ainda não publicado na íntegra.

Artigo recebido em: 12 de Julho de 2012.
Artigo Aceito em: 22 de Outubro de 2012.

RESUMO
A miocardiopatia periparto é causa rara de disfunção ventricular esquerda e consequente falência cardíaca em mulheres desde o último mês de gravidez até o quinto mês de puerpério. O objetivo foi relatar o manuseio anestésico adequado para o binômio materno-fetal nas gestantes com tal cardiopatia. Relato de Caso: paciente de 20 anos, 34 semanas de gestação, previamente hígida, iniciou quadro de palpitação. O eletrocardiograma revelou Taquicardia Supraventricular. Na Unidade de Terapia Intensiva (UTI), apresentou diferentes ritmos patológicos, refratários a diversas terapias. O ecocardiograma revelou miocardiopatia dilatada e fração de ejeção de 36%. A paciente evoluiu com deterioração ventricular, e com 37 semanas de gestação, foi submetida à cesariana sob anestesia geral. Foram realizadas monitorização invasiva, profilaxia para broncoaspiração, indução anestésica em sequência rápida, com manobra de Sellick. A indução foi feita com etomidato, remifentanil, rocurônio, e midazolam, e a manutenção com isoflurano e remifentanil. A cirurgia transcorreu sem intercorrências, com estabilidade hemodinâmica, sendo a paciente encaminhada extubada para a UTI, 4 horas após. Houve melhora da função ventricular já no terceiro dia de puerpério. Conclusões: A miocardiopatia periparto é uma doença com nefastas repercussões materno-fetais, cujo diagnóstico é de exclusão. A técnica anestésica é polêmica. A gestante é considerada "estômago cheio" e com via aérea difícil, sendo a anestesia geral evitada. Entretanto as alterações hemodinâmicas pelo bloqueio simpático no bloqueio regional não são permitidas. Recomenda-se nas cardiopatias graves a realização de anestesia geral com monitorização invasiva, evitando fármacos que causem depressão cardiovascular.

ABSTRACT
Peripartum cardiomyopathy is a rare dysfunction of left ventricular and subsequent heart failure in women in the last month of pregnancy or until the 5th month of puerperium. The objective was to report the anesthetic management for both mother and fetus in cases of pregnant with this cardiopathy. Report: Patient 20 years old, 34 weeks of gestational age, previously healthy, developed palpitations. The electrocardiogram showed supraventricular tachycardia. During evolution in ICU, presented different pathological rhythms refractory to many therapies. The echocardiogram showed supraventricular tachycardia. During evolution in ICU, presented different pathological rhythms refractory to many therapies. The echocardiography research dilated cardiomyopathy and an ejection fraction of 36%. The patient developed deterioration of ventricular function, at 37 weeks of gestation underwent cesarean section with general anesthesia. Performed invasive monitoring, bronchoaspiration prophylaxis, in a fast sequence induction with Sellick's maneuver. Anesthesia was induced with etomidate, remifentanil, rocuronium and...
midazolam, was kept with isoflurane and remifentanil. The surgery was uneventful, had excellent hemodynamic stability, the patient was sent to ICU, extubated 4 hours later. There was an improvement in ventricular function in 3rd day after. Conclusions: Peripartum myocardopathy is a disease with harmful maternal and fetal effects, whose diagnosis is made by exclusion. The anesthetic technique to be used in such cases is controversial. The pregnant is considered "full stomach" and has difficult airway, general anesthesia is avoided. Therefore the hemodynamic changes caused by sympathetic block in regional block are not allowed. Recommend in serious cardiopathies general anesthesia with invasive monitoring, avoiding drugs that causes cardiovascular depression.

INTRODUCTION
Peripartum cardiomyopathy is a dilated cardiomyopathy of unknown etiology, establishing itself as a rare cause of left ventricular dysfunction and subsequent heart failure in women in the last month of pregnancy or until the 5th month of puerperio(1).

Despite several attempts to solve the etiology of the peripartum cardiomyopathy, and the different theories about this disease, the cause remains unknown and its diagnosis is often by exclusion(2).

OBJECTIVES
The objective was to report the anesthetic management appropriate for both mother and fetus in cases of pregnant women with this cardiopathy.

METHODS AND RESULTS
Patient 20 years old, primiparous with 34 weeks gestational age, previously healthy, suddenly began with palpitations. The patient was hemodynamically stable, with good fetal vitality, but the ECG showing supraventricular tachycardia. In the Intensive Care Unit (ICU) showed different pathological rhythms alternating refractory to various pharmacological therapies, including electrocardioversion.

It was conducted the following complementary tests: Chest radiography showed increased heart area; serology negative for Chagas' disease, TSH: 1.4, T4: 0.7 and transthoracic echocardiography. The initial echocardiogram showed moderate mitral insufficiency, dilated cardiomyopathy with an ejection fraction of 36%. Thirteen days later, a new echocardiogram showed deterioration of ventricular function as evidenced by reduced ejection fraction to 29%. Despite this rapid deterioration, the patient remained hemodynamically stable, maintaining, according to the NYHA clinical criteria as functional class III, which allowed obstetric waiting to term.

At 37 weeks of gestation underwent a Caesarean operation using general anesthesia. The anesthetic preparation began one hour before the procedure, aspiration prophylaxis with metoclopramide and ranitidine. Besides the usual monitoring, with cardioscopy and pulse oximetry, we chose for invasive blood pressure measurement with the left radial artery catheterization. Anesthesia was done with remifentanil (0.5 mcg / kg / min) for 3 minutes, followed by etomidate (0.3 mg / kg) and rocuronium (1.2 mg / kg), with a concomitant lateralization of the uterus to the left and Sellick's maneuver.

Tracheal intubation with tube No. 6.5, followed by immediate surgical incision after inflation of the cuff. She was given 3 mg of midazolam. The anesthesia was kept with isoflurane 0.5% and remifentanil (0.2 to 0.3 mcg / kg / min). The surgery was uneventful, with excellent hemodynamic stability, and the fetus had Apgar 7/9, Capurro of 35 weeks. The postpartum woman was sent to the ICU intubated, sedated with remifentanil was extubated 4 hours later without complications. On the third day after birth, a new echocardiogram was done and showed an ejection fraction of 36%.

DISCUSSION AND CONCLUSION
Peripartum cardiomyopathy is a rare disease, with adverse maternal and fetal effects, whose diagnosis is in most cases of exclusion. And that is why it is necessary that the patient meets four criterias to meet the definition of cardiomyopathy periparto(3).

Development of heart failure in the last month of pregnancy or until the 5th month of puerperium. Absence of an an identifiable cause for heart failure. Absence of heart disease preceding the last month of pregnancy. Left ventricular systolic dysfunction (ejection fraction of left ventricle less than 45% and/or reduction in ventricular shortening fraction of greater than 30%). Echocardiography is a valuable examination, which usually shows an overall reduction in contractility and increase without left ventricular hypertrophy.

Other echocardiographic findings suggestive are: Increase in the left atrium, mitral and tricuspid regurgitation. Changes of the heterogeneous ventricular wall thickness during systole. Dilated cardiomyopathy characteristic of this disease, not often causes severe the atrioventricular valve regurgitation and consequently, causing the ejection fraction measured by echocardiography is overestimated. Pregnant women with peripartum cardiomyopathy develop symptoms of cardiac decompensation in the last weeks of pregnancy and especially postpartum while women with previous heart disease (valvular, or ischemic disease,
myopathy) to suffer cardiac decompensation in the second trimester of pregnancy, when there is a major cardiovascular overload imposed by increasing blood pressure\(^\text{\textsuperscript{5,6}}\).

The anesthetic technique to be used in such cases is controversial because of the difficulty imposed by changes of pregnancy. The characteristic edema of the airways, associated with high risk of bronchoaspiration are all factors that make a pregnant patient with a large potential for a difficult airway, and for that reason, most authors recommend the performance of regional block with slow induction sympathetic block\(^\text{\textsuperscript{2,5,7}}\). However, it is recommended to serious cardiopathies the use of general anesthesia with invasive monitoring, avoiding drugs that cause depression cardiovascular\(^\text{\textsuperscript{9}}\).

The preparation of the general anesthesia begins with the prophylaxis of aspiration, since pregnant women are always considered "full stomach" using drugs that increase gastric pH and decrease its volume. For these purposes the most frequently used medications are metoclopramide, ranitidine and sodium citrate, administered 45 minutes before induction\(^\text{\textsuperscript{9}}\). The induction should be done in fast sequence, with proper positioning of the patient, and likely due to difficult intubation, all sorts of devices for difficult airway management should be available, since the risk of failed intubation in pregnant women is about 4 to 8 times higher than in non-pregnant population\(^\text{\textsuperscript{9}}\). During anesthetic induction the supine hypotension syndrome cannot be neglected, the uterus should be lateralized to the left by the surgical team, and ready to start the surgery.

The choice of general anesthesia for caesarean in heart disease patients is done when the heart does not allow hemodynamic sympathetic block imposed by a regional block. For this reason, the therapeutic drugs to be used should aim maximum maternal hemodynamic, with minimum fetal impact. Remifentanil meets this requirement to be an effective drug in blocking the hemodynamic response to intubation, which is rapidly metabolized by plasma esterase, bringing a few fetal repercussions. A double-blind study compared the newborn Apgar score of two groups each with 20 pregnant women who underwent Caesarean delivery under general anesthesia, and in one of the groups we used remifentanil and the other was used placebo. There was no difference in Apgar score between the two groups and time to achieve spontaneous ventilation was slightly higher in the remifentanil group (25 vs 75 seconds)\(^\text{\textsuperscript{10}}\).

The hypnotic of choice for this situation is etomidate, given its remarkable hemodynamic stability and maintenance of anesthesia can be done with isoflurane at 0.5 MAC, since at higher concentrations can occur in smooth muscle relaxation and consequent uterine atony. Thus, blockade of adrenergic response will depend more on the plasma concentration of opioid. However, even with appropriate treatment options, general anesthesia reduces the uteroplacental flow.

So the shorter the induction-birth, the less time exposure of the fetus to the regime of low flow and lower the transfer of drugs to the fetus, noting that the time is directly related to fetal hypoxia and acidosis, regardless of the anesthesia\(^\text{\textsuperscript{9}}\). A vaginal delivery is contraindicated in certain heart diseases due to hemodynamic stress triggered by labor. The magnitude of anxiety, pain and apprehension determine the intensity of increased heart rate and systemic vascular resistance with consequent increase in afterload.

The increase in heart rate associated with increased stroke volume imposed by uterine contractions, causes cardiac output to rise by 15% in the latent phase, 30% in the active phase of 1st stage and 45% in the second stage. The autotransfusion caused by each uterine contraction increases cardiac output between 10 and 25%, and shortly after birth, this increase can reach 80% due to involution uterine\(^\text{\textsuperscript{11,12,13,14,15}}\). Therefore, hemodynamic instability can occur in pregnant women with serious heart disease at all stages of labor and cesarean delivery in the case of this instability can occur during installation of sympathetic block on regional anesthesia, during induction of general anesthesia during bleeding during surgery or in the immediate postoperative period, when the uterine involution associated with decompression of the inferior vena cava, greatly increases venous return and cardiac work.

For this reason, pregnant women with heart disease undergoing general anesthesia, extubation have more benefits a few hours after cesarean section for better management of any overload, which offer great risk of causing acute pulmonary edema, and one should avoid or lessen the adrenergic response also extubation, in order to prevent new cardiovascular stress.

REFERENCES
03. Pearson G, Veille JC, Rahimtoola S. Peripartum cardiomyopathy: National Heart, Lung and Blood Institute and Office of Rare Diseases


