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Case report

Takotsubo cardiomyopathy in the post-anesthetic care unit☆

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ABSTRACT

Takotsubo cardiomyopathy (TC) is a transient left ventricular dysfunction that may mimic an acute coronary syndrome. Characteristically, it presents with chest pain of acute onset, electrocardiographic alterations suggestive of myocardial ischemia, and transient akinesis of the apex and the distal portion of the left ventricular anterior, lateral and inferior walls, with compensatory hyperkinesis of the basal walls. These changes in myocardial contractility make the ventricle acquire the typical appearance of a "takotsubo", a Japanese word that refers to a vessel used as an octopus trap. It is frequently triggered by psychological or physical stress in postmenopausal women. Ventricular function recovers quickly and prognosis is excellent.

There are several case reports of associations between anesthesia and surgery with TC. The adrenergic discharge during or after anesthesia may affect the myocardium and gives rise to transient ventricular dysfunction in some patients. We describe a case of TC in a patient undergoing eye surgery.

The case is of a 72-year-old patient scheduled for cataract surgery under general anesthesia. Functional class was normal and there were no special events during the procedure. In the post-anesthetic care unit, the patient had an episode of respiratory failure associated with an inverted T-wave. The transthoracic echocardiogram revealed ventricular dysfunction, and the coronary arteriogram showed normal coronary arteries. The patient was diagnosed with TC and she recovered normal ventricular function within 4 weeks.

Conclusions: TC is a reversible ventricular dysfunction, and there is a growing number of cases described in the literature in relation to anesthesia. Anesthetists must be aware of this condition every time there is a cardiac dysfunction or hemodynamic collapse in the perioperative setting.

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Cardiomiopatía Takotsubo en la unidad de cuidado postanestésico

Palabras clave:
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Disfunción ventricular
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Isquemia miocárdica

RESUMEN

La cardiomiopatía Takotsubo es una disfunción transitoria del ventrículo izquierdo que puede simular un síndrome coronario agudo. Se presenta de manera característica con dolor torácico de inicio agudo, alteraciones electrocardiográficas sugestivas de isquemia miocárdica y acinesia transitoria del ápex y de la parte distal de las paredes anterior, lateral e inferior del ventrículo izquierdo con hipercinesia compensatoria de las paredes basales. Estos cambios de la contractilidad miocárdica hacen que el ventrículo tome la típica apariencia de un «takotsubo», palabra japonesa que hace referencia a una vasija usada como trampa para cazar pulpos en Japón. Es frecuentemente desencadenada por estrés psicológico o físico en mujeres posmenopáusicas; la función ventricular se recupera rápidamente con excelente pronóstico.

La anestesia y el ámbito perioperatorio han sido relacionados a varios reportes de casos de cardiomiopatía Takotsubo. La descarga adrenérgica durante o después de la anestesia puede afectar el miocardio y desarrollar una disfunción ventricular transitoria en algunos pacientes. Nosotros describimos un caso de cardiomiopatía Takotsubo en una paciente que fue sometida a una cirugía ocular.

Una paciente de 72 años de edad fue programa para cirugía ocular por cataratas bajo anestesia general. Su clase funcional previa era normal y no ocurrieron eventos especiales durante el procedimiento. En la unidad de cuidados postanestésicos la paciente presentó un episodio de falla respiratoria asociada a inversión de la onda T. El ecocardiograma transtorácico reveló una disfunción ventricular y la arteriografía coronaria evidenció arterias coronarias normales. Se diagnosticó cardiomiopatía Takotsubo, y 4 semanas después del episodio la función ventricular retornó a la normalidad.

Conclusiones: La cardiomiopatía Takotsubo es una disfunción ventricular reversible y cada día se describen más casos relacionados con la anestesia. Los anestesiólogos debemos estar alerta a esta condición cada vez que se presente una disfunción cardíaca o un colapso hemodinámico durante el ámbito perioperatorio.

Takotsubo cardiomyopathy (TC)

TC is a transient condition that mimics acute myocardial infarction (AMI). TC, apical ballooning or broken heart syndrome are terms that have been used to define a reversible cardiomyopathy often caused by a stressful situation, with a presentation indistinguishable from myocardial infarction. It has been reported almost exclusively in postmenopausal women, and emotional or physical stress may be the triggering event. Echocardiographic changes return to normal within weeks or months. Anesthesia and the perioperative setting have been associated with this condition.

Case report

The patient gave her informed consent.

A 72-year-old woman was scheduled for cataract surgery. There was a significant clinical history of hypertension, diabetes mellitus and chronic obstructive pulmonary disease. She was receiving losartan, glibenclamide, metformin, furosemide and theophylline. She had no history of cigarette smoking and her functional class was normal (NYHA 1). There was no history of obesity (BMI was 27) or obstructive sleep apnea, and there were no parameters suggesting a difficult airway. Laboratory tests and the electrocardiogram done before surgery were normal.

On the day of surgery, the patient was premedicated with 2 mg of midazolam IV and her blood sugar reading was 109 mg/dl. Basic monitoring was instituted (NIBP, pulse oxymetry, capnography and lead-II EKG). Blood pressure was 160/90 and heart rate was 90 bpm. The patient was asymptomatic and did not report chest pain. General anesthesia was induced with fentanyl 100 μg, lidocaine 60 mg, propofol 60 mg, and vecuronium 2 mg. A number 3 laryngeal mask was used for airway management, and maintenance was achieved with 3% sevoflurane and oxygen at a rate of 1 l/m. Half way into surgery, an additional dose of 2 mg of vecuronium was required. The surgery lasted 45 min and was uneventful, and the muscle relaxant was reverted at the end of the procedure using 2 mg of neostigmine and 1 mg of atropine, due to evidence of residual muscle relaxation. No peripheral nerve stimulator was available. The laryngeal mask was removed after confirmation of adequate breathing and consciousness.

The patient was taken to the Post Anesthesia Care Unit where she was monitored and received 50% oxygen through a Venturi mask. After 20 minutes, she presented desaturation, agitation and her blood pressure increased above 200/110, with no improvement when 100% oxygen was used. She was intubated using fentanyl 100 μg, lidocaine 60 mg, propofol 60 mg and vecuronium 2 mg. A 7.5 orotracheal tube was used and