CARDIOGENIC SHOCK ASSOCIATED TO STRESS
CARDIOMYOPATHY DURING SEDATION FOR ENDOMETRIAL
CURETTAGE AFTER SPONTANEOUS ABORTION. CASE REPORT

Masgoret P., Calvo A., Chanza M., Caballero A., Borrat X., Mercadal J.
Anesthesiology Department. Hospital Clinic. University of Barcelona

BACKGROUND

Stress or “Tako Tsubo” cardiomyopathy (SCMP) has a female predominance (80–100%). They are typically postmenopausal, although it has also been observed in women under 50 (5–11% of cases) and there are reports in sedation for gastrointestinal endoscopy. We present a case of SCMP with cardiogenic shock during sedation for endometrial curettage, which to the best of our knowledge has not been reported yet.

CASE REPORT

Patient and Procedure

A 35-year-old woman without relevant pathologies, allergies or family history of heart disease underwent endometrial curettage after spontaneous abortion (12.6 weeks). Vital signs and laboratory data before procedure were normal. Considering age, aerobic capacity and absence of pathology, no chest X-ray or electrocardiogram (ECG) were requested. She was sedated with propofol and alfentanil boluses (total: 100 mg and 600 ug respectively), maintaining spontaneous ventilation, SpO2>97% without hemodynamic involvement during most part of procedure .

Complication

At the end of curettage, she suffered severe bradycardia (25 beats per minute-bpm), treated with atropine 0.6 mg. Immediately afterwards, monomorphic extrasystoles appeared, leading to salves of ventricular tachyarrhythmia that lasted 3 seconds. Patient did neither lose pulse nor need cardiac massage or defibrillation at any time . Blood pressure (BP) decreased to 82/45 mmHg. Amiodarone bolus was administered, extrasystoles stopped and curettage was finished. After finishing, low SpO2 (80%) and decreasing BP: 64/36 mmHg developed. Auscultation: bilateral crackles. Bedside transthoracic echocardiography (TE): severe left ventricular (LV) hypokinesis, without right cavities involvement. She was intubated and mechanical ventilation was started. Dobutamine (DBT) infusion (10 ug/kg/min) was initiated and withdrawn due to tachycardia (140 bpm) and hypotension. Norepinephrine (NE)(0.4/ug/kg/min) was started.

Echocardiography and evolution

A more comprehensive TE under NE revealed severe LV systolic and diastolic dysfunction with absence of septal and anterolateral thickening, global hypokinesis, reduced ejection fraction (EF:<25%, visual estimate) and dilated LV. LV outflow tract velocity time integral (VTI) was 12 cm, which allowed to calculate cardiac output (CO) of 2.9 L/min. DBT was restarted, keeping NE. An immediate increase in contractility was seen and LV outflow tract VTI raised to 15.8 cm; CO: 4.4 L/min, cardiac index: 3.7 L/min. E/A wave ratio: 3.6 (with right atrial septal deviation), tricuspid annular plane systolic excursion (TAPSE): 20mm. ECG: negative T waves in V1-V2. Chest X ray: blood flow redistribution. Troponin I peaked at 12 hours (3.4 ng/mL) and then decreased. TE (cardiologists) after 12 hours revealed slightly reduced motility, LV with normal size and thickness, EF: 40-45% and not altered valves. She was discharged 5 days later, asymptomatic and under carvedilol treatment. Cardiac magnetic resonance (CMR) performed 4 weeks later showed non-specific findings: slightly dilated left atrium: 23.3 cm². (normal<20 cm²), normal myocardial perfusion, not- dilated LV, preserved global motility. EF: 65%, without increase in signal intensity compatible with myocardial oedema.

LEARNING POINTS

Echocardiography had an important role as a diagnostic tool to help defining the cause of shock, as a monitoring tool, and to guide treatment decisions (restart DBT after NE initiation with final improvement). Doppler echocardiography provides an estimation of stroke volume and hence cardiac output using the calculation of VTI LV outflow tract and area of the duct crossed by this flow. Since area of LV outflow tract does practically not change over time, it is enough to follow short-term changes in VTI in order to assess changes in stroke volume. The filling pattern observed in a normal heart results in an E/A ratio> 1, but <2, as a result of atrial contraction providing a lower volume at the end of the early filling phase. In the reported case E/A ratio was 3.6 with right atrial septal deviation. Usually, this ratio greater than 2 means elevated left atrial pressure and severe diastolic dysfunction. Right ventricular longitudinal function is assessed by tricuspid annular plane systolic excursion (TAPSE), The lower normal value of the TAPSE is 16 mm. Considering TAPSE measure of 20mm in this case, we concluded, she suffered also diastolic failure.

References

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ECG: negative T waves in V1-V2

TE: LV outflow tract VTI (NE and DBT): 15.8 cm.
CO 4.4 L/min

TE: LV outflow tract VTI (NE): 12 cm. CO 2.9 L/min

E/A wave ratio (NE and DBT): 3.6

CRM after 4 weeks: left atrium 23.3 cm2

DISCUSSION

SCMP is related to wide range- stressful events. Our case could be related to medical procedure, drugs, a raise in endogenous catecholamines or emotional stress. There are 2 main differential diagnoses (DD) to be considered: Acute coronary Syndrome (ACS) and peripartum cardiomyopathy (PCM). No coronary angiography was performed. This is arguable, but considering evolution together with the rest of imaging done, it did not seem necessary in accordance with previous case reports. Treatment is hemodynamic and respiratory support, including inotropic and vasopressor agents, beta blockers and diuretics. DBT in this case led to BP drop but repeated echocardiography showed neither signs of hypovolemia no LV outflow tract obstruction, which is sometimes associated with SCMP treated with inotropes. Combination of DBT and NE was finally effective leading to increase in CO and improvement of patient clinical status.

	Risc factors	Troponin	TE	Evolution	CMR
SCMP	•Women •Postmenopausal	Light elevation	Coronary pattern: •Tako Tsubo (apical) •Inverted •Midle -ventricular	Reversible in a short period of time	•Circumferential hyperintensity in T2 (DD myocarditis) •No contrast enhancement (DD ACS)
ACS	•Hypertension •Diabetes mellitus •Dislypemia •Familiar History	Important elevation	Coronary pattern	Variable (depends on revascularization)	Contrast enhacement
PCM	• Last pregnancy month •5 months after birth •Preeclampsia, Hypertension	Pro BNP elevation	•Ventricular dysfunction with dilated cavities •LV thrombosis	Recovery after 3 months	•Subendocardial hyperintensity in T2 •No contrast enhancement