

Imágenes

Fallo agudo del ventrículo derecho inducido por ventilación mecánica en el paciente crítico. Reporte de caso.**Acute failure of the right ventricle induced by mechanical ventilation in the critically ill patient.**

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INFORMACIÓN DEL ARTÍCULO

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www.revistafac.org.ar**Palabras clave:**Fallo agudo,
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Los autores declaran no tener conflicto de intereses.

A 69-year-old man with history of mitral valve prolapse causing moderate regurgitation was admitted due to septic shock. Transthoracic echocardiogram (TTE) showed preserved biventricular systolic function and a mitral valve vegetation with severe mitral regurgitation, thus establishing the diagnosis of native valve endocarditis. Two days later, the patient evolved with increasing pulmonary congestion and respiratory failure. He initiated invasive mechanical ventilation, but became progressively hemodynamically unstable. A repeat TTE revealed a flail posterior mitral leaflet

and de novo severe right chamber dilatation and right ventricular (RV) systolic dysfunction (*Figure 1, Online Resource 1*).

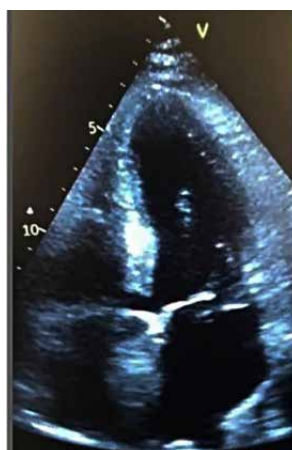
Computed tomography ruled out pulmonary embolism. Positive end-expiratory pressure (PEEP) was reduced from 10 to 6 cmH₂O and a favourable hemodynamic response was observed. Reevaluation TTE 3-hours later revealed complete normalization of the previous RV abnormalities (*Figure 2, Online Resource 2*). The patient was stabilized, vasopressor support was reduced and he later underwent valve replacement surgery.

Ventilation with PEEP provides benefits in patients with acute heart failure and severe respiratory failure¹. In general, moderate to high PEEP levels (10-15 cmH₂O) may improve cardiac output in patients with left ventricular failure². Nevertheless, susceptible patients can develop an acute increase in RV afterload culminating in RV dysfunction, cardiac output reduction and hemodynamic deterioration³. Although ventilation with higher PEEP levels or pre-existing RV dysfunction are known risk factors, this condition can also occur in their absence².

Acute RV failure can be induced or potentiated by mechanical ventilation. This condition should be remembered as a potentially reversible cause of severe or refractory hypotension in the critically ill patient, even in the absence of predisposing factors. Its recognition is important since small adjustments in ventilatory parameters may be sufficient to rapidly reverse RV abnormalities and ameliorate the hemodynamic status of the patient, as documented in this case.

**FIGURA 1.**

Transthoracic echocardiogram performed due to hemodynamic worsening after initiation of invasive mechanical ventilation, showing de novo marked right chamber dilatation on apical 4-chamber view (end-diastole). This was accompanied by right ventricular systolic dysfunction.

**FIGURA 2.**

Repeat transthoracic echocardiogram performed 3 hours after reduction of positive end-expiratory pressure levels showing normalization of the previous right ventricular abnormalities.

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