

Beta-agonist for severe asthma: what it is good for the lung may not be good for the heart

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Argomento: Caso clinico

Background

Takotsubo syndrome (TTS) is a transient myocardial dysfunction mimicking myocardial infarction (MI). One of the features differentiating TTS from MI is by the discrepancy of viable myocardium extending beyond the territory of a coronary culprit lesion. TTS underlying mechanisms are not completely elucidated; a number of concurrent phenomena, including microvascular dysfunction and catecholamine surge, have been demonstrated.

Clinical Case

A 77 y-o woman, with history of asthma, hypertension and depressive disorder, was admitted to emergency room for hypercapnic respiratory failure with severe bronchospasm. The patient was treated with nebulized and endovenous steroid and Salbutamol; nasal swab resulted positive for Influenza A.

After 24 hours and therapy up-titration to nebulized adrenaline, the patient had a further worsening with respiratory arrest.

At the ICU admission, she developed ST-segment elevation in the anterior leads with elevated troponin (9097 ng/L) and BNP (1088 pg/ml) levels. Echocardiography showed severe hypokinesia of the mid-ventricular lateral, anterior and septal walls, with apical dyskinesia (EF 35%) and moderate functional mitral regurgitation. The interTAK score was highly predictive for Takotsubo syndrome. Coronary angiography demonstrated moderate chronic stenosis of mid right coronary artery (50%) without any culprit lesion. The left ventriculography showed the Apical Nipple Sign, a pathognomonic sign of a limited residual contraction in the most apical portion of the left ventricular apex.

Oseltamivir, bisoprolol, antiplatelets were added to the treatment whereas, low dose of beta 2 agonist and steroids were discontinued as soon as the broncho obstruction was resolved.

Echocardiography showed an almost normalization of systolic function in 72 h along with the classic T wave inversion in anterior leads.

Conclusion

Respiratory distress and Beta-agonist receptors stimulation may be involved as precipitating factors of TTS, of which InterTAK score, a discrepancy between CAD and echocardiographic presentation and the Nipple sign are highly sensitive signs.

