

Multiple drugs

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Pulmonary congestion, pulmonary hypertension and lack of efficacy: case report

A 70-year-old man developed pulmonary congestion and pulmonary hypertension during treatment with epinephrine and norepinephrine for haemodynamic instability. Additionally, he exhibited lack of efficacy during treatment with dobutamine and dopamine for cardiogenic shock, and with furosemide, ranolazine, spironolactone and torasemide for post-myocardial infarction left ventricular (LV) dysfunction [*not all routes and dosages stated; duration of treatments to reactions onset not stated*].

The man developed acute anterior myocardial infarction and was treated with percutaneous coronary intervention on the proximal left anterior descending artery (LAD). He had no relevant medical history. An echocardiography prior to discharged revealed post-myocardial infarction severely depressed LV function, apical and anterior hypokinesis, normal LV dimensions and normal right ventricular dimensions and function. His medications included oral torasemide, oral spironolactone, aspirin [acetylsalicylic acid], metoprolol, ramipril, clopidogrel and transdermal nitroglycerin [nitroglycerine]. Over the following 6 weeks, his conditions gradually worsened, and he reported fatigue, dyspnoea and ongoing hypotension. Due to fear of contracting COVID-19, he denied to attend to the cardiology department. Eventually, he was hospitalised following a syncope. His conditions did not improve despite treatment adjustments including increase in doses of oral diuretics and addition of furosemide 10mg/hour and ranolazine. Physical examination and blood test revealed cardiogenic shock. He was treated with low-dose dobutamine and dopamine. However, his condition did not improve and he progressed to cardiogenic shock requiring intubation and rapid escalation of treatment. He received inotropic support with epinephrine [adrenalin] and norepinephrine [noradrenalin] both at high-doses of 0.5 µg/kg/min to for haemodynamic instability. A CT scan showed possible bilateral pneumonia and bilateral pleural effusion. A nasopharyngeal swab tested negative for COVID-19, and he was shifted to the ICU. A bedside echocardiography revealed LV aneurysm and dysfunction, severely increased pulmonary artery pressures, moderate mitral regurgitation and increased LV filling pressures. A chest X-ray confirmed severe pulmonary congestion. Furthermore, sustained ventricular arrhythmias also occurred. An emergency heart team suggested ventriculoplasty and mitral valve repair. However, his pulmonary congestion and consequent pulmonary hypertension, which were associated with epinephrine and norepinephrine, increased a severe threat to postoperative management. Thus, it was decided to initiate a short term mechanical circulatory support to allow bridging to cardiac surgery.

The man underwent an impella implantation resulting in reduction in pulmonary congestion, mitral regurgitation, LV filling pressures and resolution of arrhythmias, although pulmonary capillary wedge pressure remained high. His general haemodynamic instability ameliorated, which allowed a down-titration of norepinephrine to 0.02 µg/kg/min and epinephrine to 0.01 µg/kg/min. Anticoagulation was maintained using continuous heparin infusion. Subsequently, surgery was successful, and he was weaned off the impella with the aid of intra-aortic balloon pump (IABP) on post-operative day 5. He was weaned off the ventilator on postoperative day 10 and discharged to the cardiac rehabilitation ward on postoperative day 21. He was discharged home after a 1-month rehabilitation and was currently being regularly followed in the cardiological outpatient clinic.