Bone Cement Implantation Syndrome (BCIS): intra-operative cardiac arrest with complete recovery. A case report.

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Argomento: Caso clinico

Introduction

Bone cement implantation syndrome (BCIS) is an important cause of intra-operative mortality and morbidity in patients undergoing cemented arthroplasty. We report a case of cardiac arrest during knee prothesis cementation with good recovery after resuscitation and ICU treatment.

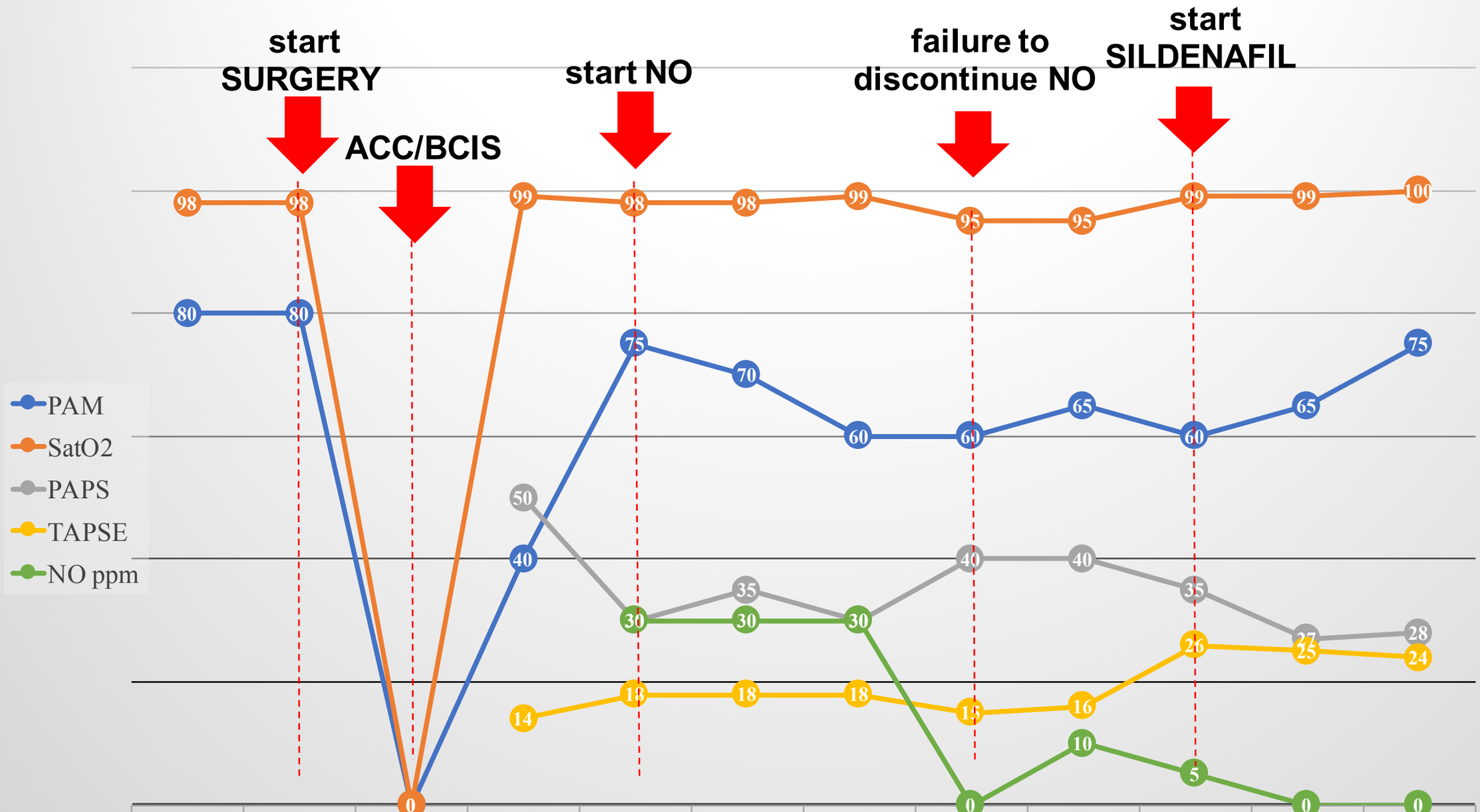
Case report

A 75-year-old woman presented to the operating room for knee arthrodesis after total knee prothesis infection. Surgery was conducted in spinal anaesthesia in lateral position. Patient was hemodynamically stable with acceptable parameters before starting surgery and during the first 2 hours of the procedure. Few minutes after injection of liquid methylmethacrylate into the intramedullary canal, systolic blood pressure suddenly decreased with rapid onset of cardiac arrest with pulseless electrical activity (PEA).

Orotracheal intubation was performed and lungs were ventilated using 100% oxygen after turning patient supine. Return of spontaneous circulation (ROSC) was obtained after 2 minutes of CPR and 1 mg of adrenaline. We immediately performed pulmonary and brain CT angiography, both negative, while a transthoracic echocardiography showed a severe right ventricle dilation with PAPs 50 mmHg and severe reduced TAPSE (tricuspid annular plane systolic excursion) of 14. The patient was transferred to ICU with high dose intravenous norepinephrine and was treated with 20 ppm of inhaled nitric oxide (NO), thus ensuring a rapid solution of pulmonary hypertension. During ICU stay we had a difficult weaning process from NO, that required sildenafil enteral administration (40 mg twice daily). An overview of the trend of the parameters is provided in figure 1. The patient was discharged from ICU ten days after cardiac arrest without sequelae.

Discussion

Many theories have been investigated to explain the pathophysiology of BCIS; in this case report we showed the role of pulmonary vasoconstriction and the potential use of pulmonary vasodilators as the best treatment choice in most severe cases.



	0	+2h	+4h	+8h	+12h	+24h	+48h	+60h	3°g	3°g	4°g	9°g
PAM	80	80	0	40	75	70	60	60	65	60	65	75
SatO2	98	98	0	99	98	98	99	95	95	99	99	100
PAPS				50	30	35	30	40	40	35	27	28
TAPSE				14	18	18	18	15	16	26	25	24
NO ppm					30	30	30	0	10	5	0	0