CPQ Medicine (2023) 14:5
Case Report

Combined Spinal Epidural in a Patient with Severe Aortic Stenosis for Unilateral Total Knee Replacement-a Case Report

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Received: 14 December 2022

Published: 20 April 2023

Keywords: *Aortic Stenosis; Spinal Epidural*

Abstract

Patients with severe aortic stenosis(AS) for orthopedic surgery carries a serious perioperative challenge for anesthesiologists especially perioperative cardiovascular events and mortality. In this case both general and neuraxial anesthesia posses its own benefits and drawbacks. We discuss the successful use of a combined spinal epidural anesthesia in a patient with severe AS undergoing elective TKR.

Introduction

Anesthetic management of AS focuses on avoidance of hypotension and maintenance of normal sinus rhythm, in an effort to avoid LV failure secondary to coronary hypoperfusion, so neuraxial anesthesia have been avoided in AS patients [1]. General anesthesia also posses risk of hemodynamic changes and hypotension during induction and at the time of emergence. We present our experience managing a patient with severe AS undergoing a TKR using a combined spinal epidural anesthesia.

Case Report

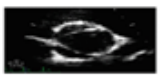
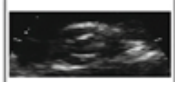
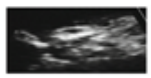
64 yrs old female, known case of osteoarthritis, aortic stenosis, hypertension, hypertensive retinopathy and dyslipidemia on Tab. Nicardia 20mg BD, Tab. Minipress XL 5mg BD and Tab. Avas 10mg OD came for elective left sided TKR. On preoperative evaluation patient had anticipated difficult airway MPS IV, BMI was 35.4kg/m^2, METS 4-6, no deformity of spine, spaces felt. On CVS examination ejection systolic murmur, prominent in aortic area radiating to carotid. Blood investigations were within normal limits. ECG showed normal sinus rhythm, 2D ECHO showed severe aortic stenosis with aortic valve area of 0.95cm^2, mean pressure gradient 45mmhg, con. LVH and LVEF 55%. Cardiac opinion was taken, cleared under high risk.

Anesthesia Management

Preoperatively antihypertensives and statins were continued, NPO for 6 hrs, patient was explained regarding combined spinal epidural, consents obtained. Intraperatively under all standard ASA monitoring, patient in sitting position and under all aseptic precuations CSE was performed. Local infiltration using 2% Lignocaine 3 ml at L3-4, 18G Tuohys needle inserted LOR felt at 6cm, 20G epidural catheter was inserted and fixed at 11cm, spinal anesthesia given at L3-4 using 25G quinckes needle with 1.8ml 0.5% hyperbaric bupivacaine with 12.5mcg fentanyl. Patient was hemodynamically stable, after 1 hr 3ml 2% Lignocaine with adrenaline was given through epidural catheter. Surgery was uneventful and patient shifted to CCU for further monitoring. Postoperatively epidural infusion was started using 0.125% Bupivacaine at 6ml/hr. She was hemodynamically stable and VAS <3/10.

Discussion

Aortic stenosis is the most important cardiac valve disease in developed countries. Severe AS is a risk factor for perioperative cardiac complications in non cardiac surgeries [2]. AS is most often a degenerative disease. There are 3 cardinal symptoms in AS, angina, syncope and dyspnea, however symptoms do not correlate well to the severity of the stenosis and some patients with small valve areas can be asymptomatic [3]. Although considered a relative contraindication to neuraxial anesthesia, our case demonstrates that low-dose spinal with epidural administration of local anesthetic can be safely employed in patients with AS. The early detection and treatment of hypotension and arrhythmias are essential. Although this is not the first reported use of this technique in patients with severe AS [4]. Judicious titration of spinal and epidural anesthesia with close hemodynamic monitoring allowed us to execute this technique safely for our patient.

Echo finding	Normal	Mild AS	Moderate AS	Severe AS	Critical AS
AVA (cm^2)	3.0–4.0	>1.5	1.0–1.5	<1.0	<0.7
AV velocity (m/s)	<2.5	<3.0	3.0–4.0	>4.0	
AV gradient (mmHg)	~0	<25	25–40	>40	>50
Echo image					

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