J Anesth (2010) 24:660–661
DOI 10.1007/s00540-010-0938-x

LETTER TO THE EDITOR

Low-dose spinal anesthesia in asymptomatic complete heart block without perioperative pacing

Kapil Gupta · Hemavathi Balachander · Ashok Badhe · R. M. Mohan

Received: 31 October 2009 / Accepted: 6 March 2010 / Published online: 14 April 2010

To the Editor:

Complete heart block is complete absence of conduction between atrium and ventricle, whereby atrium and ventricle beat independently [1]. It is an important indication for pacemaker insertion, but not all patients need a pacemaker insertion before surgery. We report case of a 26-year-old, 83-kg woman with congenital complete heart block who was scheduled for interval sterilization. She was asymptomatic (no syncopal attacks), had normal exercise tolerance, and was not on any treatment. She was conscious and oriented, and her vitals were pulse rate 50 beats/min, blood pressure 134/70 mmHg, respiratory rate 14/min, and she was afebrile. Her electrocardiogram (ECG) revealed complete heart block with narrow QRS complexes (Fig. 1) and preoperative echocardiography showed left atrial enlargement with normal ejection fraction. Her heart rate increased from 54 to 66 beats/min after receiving 0.3 mg atropine intravenously.

In the operation theater, ECG, noninvasive blood pressure, and saturation of peripheral oxygen (SpO_2) monitoring was started, and a 20-gauge IV cannula was secured. Temporary pacemaker and emergency drugs (adrenaline and isoprenaline) were kept ready, and the cardiologist was on standby for emergency pacing, if required. After prophylactic administration of glycopyrrolate 0.2 mg IV, heart rate increased from 50 to 72 beats/min. After adequate preloading, 5 mg 0.5% heavy bupivacaine and 25 μg fentanyl citrate were administered intrathecally in L3–L4 space, and a sensory block up to T6 was achieved. Patient remained hemodynamically stable intraoperatively and postoperatively.

Complete heart block can occur at A–V node/proximal to bundle of His (supranodal block) or distal to bundle of His/Purkinje system (infranodal block). In supranodal block, QRS complexes are narrow (<0.10 s), patients are asymptomatic, and heart rate increases in response to exercise/atropine. These patients can be managed without pacemaker insertion, although temporary pacemaker should be available if excessive slowing of heart rate or syncope occurs during surgery. Our patient had all features of supranodal block. Vagolysis prior to anesthesia administration provides protection against drug-induced or reflex bradycardia.

Pacemaker insertion is indicated in patients with infranodal block (broad QRS complexes >0.12 s), symptomatic bradycardia, ventricular dysfunction, low cardiac output, failure of antiarrhythmic drugs, and postoperative block persisting 7 days after cardiac surgery (class I, level of evidence: B) [1]. In these patients, ventricular rate decreases with age. Ventricular rate <40/min may be associated with congestive heart failure or Stokes–Adams attacks. These patients may have bradycardia, hypotension, arrhythmias, and cardiac arrest intraoperatively [2]. General anesthesia drugs such as inhalation agents and propofol [3] can depress myocardial contractility, accentuating a drop in cardiac output. Asystole has been reported with the use of sufentanil and vecuronium [4]. Epidural and spinal anesthesia [5] have been successfully used in patients with asymptomatic congenital complete heart

Written informed consent has been sought and obtained by patient to publish this case report.

K. Gupta (✉) · H. Balachander · A. Badhe · R. M. Mohan
Department of Anesthesia and Critical Care, Jawaharlal Institute of Postgraduate Medical Education and Research, Dhanvantari Nagar, Pondicherry 605006, India
e-mail: kapilgupta75@indiatimes.com; kapgup11@yahoo.co.in

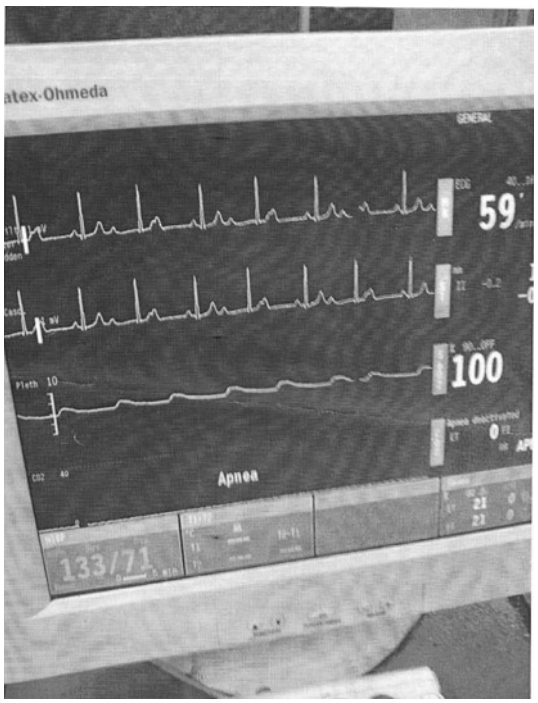

Fig. 1 Monitor showing complete heart block

block. Use of intrathecal opioid prevents any acute fall in blood pressure (associated with spinal anesthesia) by reducing the dose of local anesthetic.

To conclude, in a carefully chosen subset of patients with congenital complete heart block, if the patient has been asymptomatic and electrophysiologically proven to have supranodal block, low-dose spinal anesthesia using opioid may be considered without prophylactic pacemaker insertion provided the patient is intensively monitored and provision for immediate pacing is kept ready.

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