Intermittent left bundle branch block revealed during anaesthesia

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SUMMARY

Intermittent left bundle branch block is uncommon. During anaesthesia, left bundle branch block may be related to hypertension or tachycardia and its occurrence makes the diagnosis of acute myocardial ischaemia or infarction difficult. Patients with intermittent left bundle branch block often develop established left bundle branch block, which may represent an earlier state of ischaemic heart disease. Cardiological investigation of our patient after operation did not point towards an organic cause of intermittent left bundle branch block. (Br. J. Anaesth. 1994; 72: 700–701)

KEY WORDS


Left bundle branch block, occurring during general anaesthesia, makes the diagnosis of acute myocardial infarction difficult [1]. We report a patient with intermittent left bundle branch block revealed during anaesthesia. After operation, cardiological investigations did not reveal any organic cause of heart disease, although this condition is thought to indicate early ischaemic heart disease.

CASE REPORT

A 80-kg, 70-yr-old Caucasian man, ASA I, was scheduled for maxillofacial surgery. Past medical history and physical examination were unremarkable. Preoperative ECG, routine chest x-ray and full blood count were normal.

Midazolam 5 mg and atropine 0.5 mg were given i.m., 1 h before induction of anaesthesia. Arterial pressure was 140/80 mm Hg and heart rate was 69 beat min\(^{-1}\) before induction of anaesthesia. Anaesthesia was induced with propofol 150 mg, alfentanil 1 mg and vecuronium 6 mg. Nasotracheal intubation was performed and a pharyngeal pack inserted. Anaesthesia was maintained with 50% nitrous oxide and 1% isoflurane in oxygen and a bolus dose of alfentanil 1 mg. Surgery was performed without incident and lasted 150 min. At the end of operation, left bundle branch block was noted on the ECG in the absence of any stimulation and without any changes in arterial pressure or heart rate (fig. 1). A 12-lead ECG was performed which confirmed left bundle branch block. After recovery from anaesthesia, the patient had no chest pain and serial cardiac enzymes were normal. In the recovery room, the ECG reverted spontaneously to normal sinus rhythm. Echocardiography was normal, as was maximal stress exercise. During the stress exercise (Bruce protocol), intermittent left bundle branch block was noted without chest pain. Holter examination showed that the ECG revealed intermittent left bundle branch block, unrelated to pain or changes in heart rate or arterial pressure.

Two months later, the patient was again scheduled for the second stage of the surgical procedure. On admission, his ECG showed normal sinus rhythm. Premedication again comprised midazolam 5 mg and atropine 0.5 mg. Anaesthesia was induced with propofol 150 mg, alfentanil 1 mg and vecuronium 6 mg. Nasotracheal intubation was performed and a pharyngeal pack inserted. The ECG pattern varied...
between intermittent left bundle branch block, transient left bundle branch block and normal sinus rhythm throughout the entire procedure, without any related changes in arterial pressure or heart rate. The surgical procedure was completed without incident and recovery was uneventful. In the postoperative period, a 12-lead ECG showed repolarization abnormalities consisting of deep symmetrical T-wave inversion (fig. 2) between two episodes of left bundle branch block, which did not persist. The patient was asymptomatic and cardiac enzymes were normal. Coronary angiography was not performed as the patient was asymptomatic and refused further investigation.

DISCUSSION

Left bundle branch block is often associated with coronary artery disease or hypertensive heart disease [2]. When left bundle branch block occurs acutely under general anaesthesia, it is difficult to exclude acute ischaemia or myocardial infarction. Intermittent or transient left bundle branch block is encountered rarely during anaesthesia and it may or may not be related to changes in heart rate or arterial pressure. Bauer [3] showed that transition from normal conduction to abnormal intraventricular conduction may be related to alterations in heart rate by only 1 or 2 beats. In our patient, pharmacological slowing (vagal stimulation by carotid artery massage) or acceleration (using atropine 0.5 mg i.v.) of heart rate did not change intraventricular conduction. Most patients with intermittent left bundle branch block eventually develop established left bundle branch block. Intermittent left bundle branch block thus appears to indicate an earlier state of ischaemic heart disease than established left bundle branch block [4]. Cardiological investigations in our patient did not appear to indicate hypertensive or ischaemic heart disease, although interpretation of stress exercise was difficult as the patient was in left bundle branch block during exercise. Only cardiac catheterization could exclude coronary heart disease. It is interesting to note that our patient developed asymptomatic precordial repolarization abnormalities between episodes of left bundle branch block. These symmetrical T-wave inversions could indicate ischaemic heart disease, but it seems likely, as suggested by Chattergee and colleagues [5] and Denes and colleagues [6] that the changes in T wave during normal conduction are probably related to previous occurrence of intermittent left bundle branch block.

REFERENCES