Hyoscine-N-butylbromide induced ventricular tachycardia during ERCP

Sir,

Hyoscine-N-butyl bromide (HBB) is a commonly used duodenal relaxant during endoscopic retrograde cholangiopancreatography (ERCP). Although, it is an anticholinergic agent which may adversely affect the cardiovascular system,[1] any major cardiac arrhythmia has not been reported to our knowledge. Here, we present a case of symptomatic ventricular tachycardia immediately following the administration of HBB during ERCP, which caused severe hypotension and reversible myocardial ischemia. Naranjo score indicated a probable association with a score of 6.[2]

A 53-year-old woman was referred to ERCP for persistent external biliary drainage 4 days after hydatid cyst operation. She was on enoxaparin LMWH therapy (clexane 0.6 mg subcutaneous (sc) bid) due to probable pulmonary thromboembolism, which developed 2 days after the surgery. At the time of the ERCP, she was in stable condition with normal vital signs and had no complaint such as dyspnea, palpitation, chest pain, or abdominal pain. The cardiopulmonary vital signs were monitored continuously during the procedure, including heart rate, oxygen saturation, respiratory activity, and blood pressure. Midazolam 2 mg intravenous (i.v.) and propofol 20 mg i.v. were used for sedation induction, and a continuous infusion of propofol was added for the maintenance of sedation. Sedation was adjusted to maintain a Ramsay sedation scale score of 3-5. She was in semiprone position during the procedure, sedation was smooth and the initial phase of ERCP was uneventful (no retching, hypoxia, agitation, etc.). The free cannulation of the common bile duct was difficult due to hyperperistalsis despite HBB; confined duodenal space; and eccentric, thin papillary orifice. At approximately 30 min, fourth dose of HBB was administered aiming to perform a pre-cut via needle knife for cannulation. During the previous doses of HBB (20 mg i.v. for each), the heart rate had increased to at a maximum of 140 per min. The heart rate peaked to 160-180 per min in few seconds after the last HBB dose, which we were alerted from

the monitor and the rhythm changed into ventricular tachycardia immediately. The blood pressure (130/80 mmHg) and oxygen saturation (>98%) were within normal limits throughout the procedure before last HBB dosage and she was deeply sedated. The procedure was terminated, propofol was stopped, and she was turned to supine position; while the jaw thrust and mask ventilation was performed. A regular sinus rhythm could be obtained after immediate cardioversion and lidocaine HCl 100 mg i.v. In a few minutes, she was conscious and responded to verbal commands despite the recognition of severe hypotension (50/28 mmHg). After cardioversion, saline and dopamine infusion was started to treat hypotension. Aspirin 300 mg was chewed, while ECG revealed ST segment depression of 2 mm in anterior leads (V1-V6) and cardiac enzymes was ordered. During ward admission, she had no complaint of chest pain, dyspnea, etc. Hypotension resolved after 4 h of saline and dopamine infusion. Cardiac enzymes showed elevation in troponin I (1024 ng/ml, N: 0-0.15) while creatinine kinase MB isoenzyme (CK-MB) (22 U/L, N: 7-25) was normal. The echocardiography revealed a segmental left anterior wall hypokinesia with a normal ejection fraction, and the coronary angiography at the following day was completely normal. So, the episode was interpreted as reversible myocardial ischemia due to ventricular tachycardia. Fortunately, percutaneous biliary drainage was ceased approximately in 10 days without need for intervention.

The cause of tachycardia during ERCP is likely multifactorial, including viscerocardiac reflex, endocrine stress response, side-effects of medication (e.g., anticholinergics), hypoxemia, and psychological stress.[3] In the present case, the usual causes of tachycardia such as hypoxemia, hypotension, and agitation due to light sedation were absent; and the mentioned major arrhythmia occurred immediately after the fourth dose of HBB injection. Moreover, anesthetist promptly noted this adverse event on the monitor. Hence the episode of ventricular tachycardia was confidently attributed to HBB usage. As an anticholinergic agent, HBB induced tachycardia was associated with ischemic episodes,[4] and the use of more than 40 mg of hyoscine-N-butyl bromide was found to be a risk factor for ERCP-related complications by multivariate analysis.[5] In conclusion, prompt monitoring should be essential during ERCP if HBB is used, and glucagon may be a safer option in selected cases.[6]

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