

Use of fentanyl-dexmedetomidine in conscious sedation for thoracoscopy

Sir,

Diagnostic thoracoscopy may be useful in patients in whom the origin of pleural effusion remains unclear after routine fluid analysis and pleural needle biopsy. In the diagnostic evaluation of malignancy, thoracoscopy is better than needle biopsy because of greater diagnostic yield and advantage of doing pleurodesis through it. Thoracoscopy is an outpatient procedure usually performed by pulmonologists using local anesthesia and mild sedation for direct visualization of the pleura, tissue biopsy, and pleurodesis.^[1,2] The patient may be uncooperative due to anxiety, positioning, and pain and this may be limiting factor for the pulmonologist to successfully accomplish the procedure.

Different sedative drugs such as midazolam,^[3] propofol,^[4] fentanyl,^[5] and ketamine^[6] have been used for thoracoscopy. We report a case in which dexmedetomidine was used for conscious sedation in thoracoscopic pleural biopsy in a geriatric patient of chronic lymphocytic leukemia with bilateral pleural effusion.

An 80-year-old male weighing 62 kg, a known case of chronic lymphocytic leukemia, presented with fever and progressive breathlessness for 1 week. He has been receiving prednisolone, chlorambucil, and rituximab. Chest X-ray and computed tomography scan revealed bilateral pleural effusion which was more on the right side. Pigtail catheter was inserted on the right side and 2 l of pleural fluid was drained. Reports suggest fluid to be exudative and lymphocytic. Since the patient was dyspneic even after pleural effusion, he was posted for right side thoracoscopic pleural biopsy. The patient was conscious, oriented but breathless (RR = 25/min). Hemoglobin was 9.6 g%, total leukocytes count 4300/mm³, platelet count 69,000, and rest of the investigations such as kidney function, liver function, and electrocardiogram (ECG) were within normal limits. The patient was kept nil per orally (NPO) and 1 unit single donor plasma was transfused before the procedure.

The patient was shifted to operating table and monitors (SpO₂, HR, noninvasive blood pressure [BP], temperature, and ECG) were attached. His pulse rate was 98/min; BP was 130/96 mmHg, SpO₂ was 94% on room air. An 18-gauge intravenous (IV) cannula was secured and ringer lactate infusion started. Oxygen was administered through nasal prongs at 4 L/min. Fentanyl 50 mcg IV injected. Dexmedetomidine bolus at dose of 1 µg/kg body weight over 10 min was given. After 10 min, dexmedetomidine infusion adjusted to 0.5 mcg/kg/h. The patient was put in lateral decubitus position

and pulmonologist inserted the thoracoscope through pigtail port after giving local anesthesia. Thoracoscopy and pleural biopsy was done. Patient's vitals were stable throughout procedure and pulmonologist was well satisfied with patient's sedation and analgesia and there was no movement of patient during the procedure. The patient was conscious and responding to verbal commands during the procedure. After the procedure, dexmedetomidine infusion was disconnected and patient was shifted to recovery room for observation and monitoring.

Clark *et al.*^[3] compared propofol with midazolam for flexible fiberoptic bronchoscopy and found that propofol provides higher quality of sedation in terms of neuropsychometric recovery and patient tolerance. Grendelmeier *et al.*^[4] concluded that propofol should not be considered as the first choice for sedation in medical thoracoscopy due to increased risk of hypoxemia. Stratigopoulou *et al.*^[6] evaluated the effect of ketamine to prevent hypoventilation in patients undergoing deep sedation for medical thoracoscopy and emphasized the use of ketamine in conjunction with propofol for reduction of episodes of desaturation and the need for maneuvers for airway control. Hwang *et al.*^[7] reported a case of thoracoscopy under local anesthesia with sedation for a pediatric patient in which sedation was achieved using IV dexmedetomidine and ketamine. Shukry and Miller^[8] ascertain that role of dexmedetomidine when spontaneous breathing is essential such as in airway procedures and awake craniotomies as it has no deleterious effects on respiration when used in adequate doses. Sethi *et al.*^[9] compared dexmedetomidine and midazolam for conscious sedation in endoscopic retrograde cholangiopancreatography where dexmedetomidine showed higher patient and surgeon satisfaction scores.

Dexmedetomidine is selective α_2 -adrenoceptor agonist which presynaptically activates α_2 adrenoceptor inhibiting the release of norepinephrine, terminating the propagation of pain signals. Postsynaptic activation of α_2 adrenoceptors in the central nervous system inhibits sympathetic activity and thus can decrease blood pressure and heart rate, in combination produces analgesia, sedation, and anxiolysis.

To our knowledge, this is the first reported case of thoracoscopic pleural biopsy under local anesthesia and conscious sedation with fentanyl and dexmedetomidine in an adult patient. The patient was cooperative in lateral decubitus position and did not complain of pain. Further prospective randomized trials are required to determine the efficacy of dexmedetomidine fentanyl combination in medical thoracoscopy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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