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Case Report

A Case of Apnea in COPD Patients Induced by Sedatives

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ABSTRACT

The conditions of emergency patients are complex and variable, and difficult to move, so quick diagnosis and treatment in time is needed. Point of care ultrasound is an efficient tool in critical care. The author conducted preoperative evaluation for perioperative patients and rapid diagnosis for life-threatening factors so as to improve the accuracy and comprehensive preoperative evaluation.

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Introduction

Point of care ultrasound can quickly identify pneumothorax, pulmonary edema and other serious lung diseases, as well as evaluate cardiac function [1]. It is increasingly widely used in severe and emergency cases. Point of care ultrasound was used for rapid assessment of emergency patients as described below.

Case Report

An 84-year-old female patient from the department of vascular surgery was admitted to the emergency department with a diagnosis of lower limb arterial embolism and a history of chronic obstructive emphysema complicated with right heart insufficiency and atrial fibrillation. Lower limb arteriography was performed under anaesthesia at 18:00. The patient was restless, so she was sedated under anaesthesia. The patient's basal blood pressure was 150/90mmHg, heart rate was 150 beats/min, SpO₂ was 73%, and oxygen was inhaled by mask. 5ug of sufentanil was intravenously injected with 10ug of dexmedetomidine, and the patient developed apnea 1min later. After 2 min of facemask-assisted ventilation, the patient was placed with a dual laryngeal mask for mechanical ventilation. 10 min later, the patient developed man-machine confrontation with additional analgesics and muscle relaxants. Bedside ultrasound cardiopulmonary scan was taken, which was finished in 5

minutes. Left ventricular ejection fraction was 30%, indicating cardiac insufficiency, which is shown in (Video 1).

Multiple B-lines in both lungs, partially fused, suggesting pulmonary edema which is shown in (Video 2). The operation was completed by intravenous injection of interhydroxamine and furosemide, ultrasound-guided catheterization of the radial artery and right internal jugular vein. The SpO₂ of the patient was 83% after resuscitation. After communicating with the surgeon and inducing ketamine anaesthesia, the patient was sent to the ICU at 23:00 after endotracheal intubation. The ICU physician gave norepinephrine to maintain blood pressure, ambroxol to remove sputum and ulinastatin to fight inflammation.

Discussion

Point of care ultrasound has the features such as real-time, dynamic, no radiation, and perioperative is one of the most important application field, used as a supplementary diagnostic tool and the patients' bedside examination, to guide the clinical decision making at the foot of the bed [2-5]. Pulmonary encephalopathy can occur in patients with severe COPD. This patient is consistent with the characteristics of pulmonary encephalopathy, hypoxia, unconsciousness, and blood carbon dioxide partial pressure is still high after pure oxygen inhalation. The respiratory drive in patients with chronic obstructive pulmonary disease is

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hypercapnia and is sensitive to sedatives. Conventional sedative drugs can cause respiratory depression or even apnea, and the patient in this case, had apnea. After mask-assisted ventilation, spontaneous respiration did not recover, and mechanical ventilation was used to complete respiratory support.

Bedside ultrasound cardiopulmonary scan completed rapid cardiopulmonary assessment and guided the next treatment. The patient's basic state was poor, and her lung function was not recovered after awakening, but she still had respiratory failure. The patient was transferred to the intensive care unit after difficult ward management. Point of care ultrasound has been widely used in perioperative nerve block anaesthesia, and bedside ultrasound based on severe cases has played an important role during COVID-19 [6-9]. Perioperative evaluation bedside ultrasound practice is also increasing in anaesthesia [10-12]. In 2020, the Chinese Society of Anaesthesiology launched perioperative ultrasound training guidelines, which will greatly promote the use and popularization of perioperative ultrasound. In this case, bedside ultrasound was used to quickly complete cardiopulmonary assessment, which provided a visual basis for clinical decision-making and showed a good application prospect.

Foundation Items

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