

## Flaw in a disposable carbon dioxide absorber system

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To the Editor:

We report a case of accidental rebreathing hypercapnia resulting from bypass of a circle CO<sub>2</sub> absorber system. A 52-year-old male patient with lung cancer was scheduled to undergo a right lower lobectomy. A routine automated self-check of the Primus anesthesia machine (Dräger Medical, Lübeck, Germany) detected no errors.

Target-controlled infusions of remifentanyl and propofol were performed. No problems were detected during manual mask ventilation of O<sub>2</sub> at a flow rate of 8 l/min. After tracheal intubation, the patient was ventilated using mechanical ventilation with a mixture of O<sub>2</sub> and air at a flow rate of 2 l/min. After 1–2 min, FiCO<sub>2</sub> increased to 20 mmHg, EtCO<sub>2</sub> increased to 50 mmHg, and a rebreathing pattern was observed on the capnograph. The flow rate of O<sub>2</sub> was immediately increased to 8 l/min in manual ventilation. On closer inspection, a CO<sub>2</sub> absorption canister was found to be missing from the anesthesia machine (see Supplementary Figure 1). The canister was reinstalled, after which FiCO<sub>2</sub> and EtCO<sub>2</sub> normalized.

Our hospital uses the CO<sub>2</sub> absorber CLIC 800+ system with disposable absorbers. When the canister is missing,

exhaled gases bypass the CO<sub>2</sub> absorber system at the level of absorber adapter without any leakage, which allows the canisters to be replaced during operations. However, a routine automated self-check of the Primus did not detect the absence of a canister.

To the best of our knowledge, this is the first report concerning accidental rebreathing hypercapnia caused by bypass of a CO<sub>2</sub> absorber system. We received an oral message from Dräger Korea that a notification message of ‘soda lime changed’ during self-test indicates the safety of the Primus anesthesia machine. This system requires an alarm that is activated in the absence of a CO<sub>2</sub> absorption canister. We report this case to emphasize the need for vigilance to ensure that disposable canisters are correctly installed when using the Absorber Adapter CLIC for Dräger anesthesia workstations.

*Patient Consent* We received confirmation from the Institutional Review Board allowing publication without patient approval.

**Conflict of interest** None.

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