Japan Council for Quality Health Care

Project to Collect Medical Near-Miss/ Adverse Event Information

Medical Safety Information

No.130, September 2017

Air Embolism Due to a Central Venous Line Left Open

Seven cases have been reported in which air entered a blood vessel because a connection to a central venous line was removed in a way that left the line open to the air (information collection period: from January 1, 2013 to July 31, 2017). The information is compiled based on “Individual Theme Review” (p.133) in the 43rd Quarterly Report.

Cases have been reported in which air entered a blood vessel and had an impact on the patient, because a connection to a central venous line was removed in a way that left the line open to the air.

Part meant to be removed

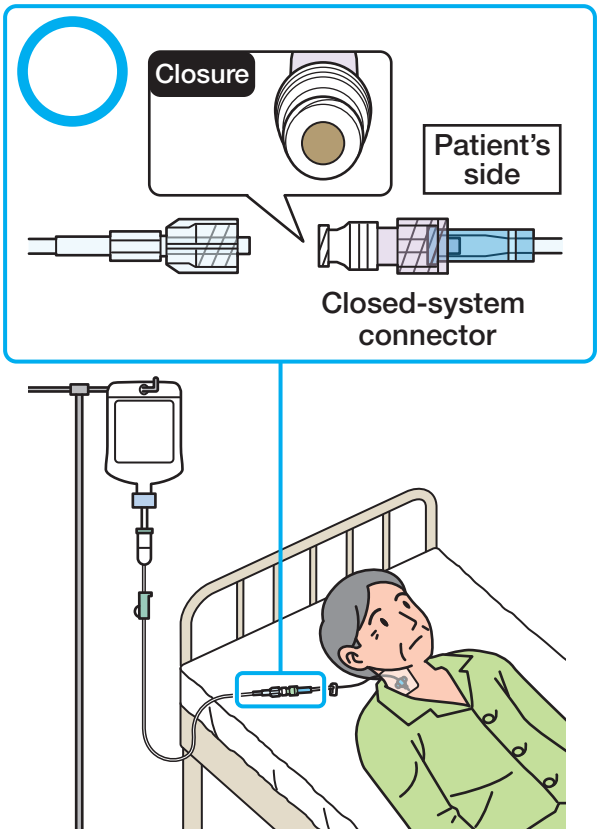
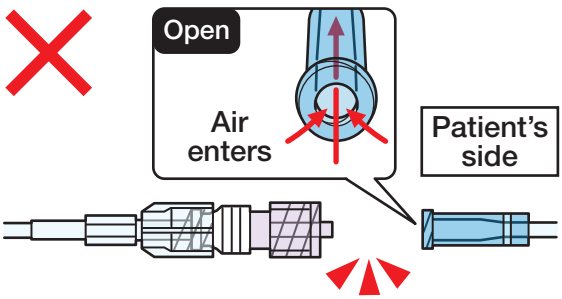


Image of case 1



Purpose of Removing Connection	Number of Cases
Changing clothes	2
Heparin lock	2
Removal of infusion line	2
Blood collection	1

◆ In six of the seven reported cases, the central venous line connection was removed while the patient was in a sitting position.

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Case 1

The nurse helped the patient to change their clothes while the patient was in a sitting position. When doing so, the connection between the closed-system connector and the infusion line could not be removed, so the closed-system connector was removed without first closing the central venous catheter clamp. The central venous catheter was left open to the air, allowing air to flow in and causing a cerebral infarction due to an air embolism.

Case 2

When carrying out a heparin lock of a central venous catheter, the nurse assumed that the central venous catheter had a closed-system connector and removed the infusion line. However, it did not have a closed-system connector, so the central venous catheter was left exposed to the air. The patient's face turned pale and the patient collapsed on the bed. A head CT was taken, with a finding of a suspected air embolism.

Preventive measures taken at the medical institutions in which the events occurred

- **All staff will be made aware that, where a closed-system connector is not being used, removing the connection to a central venous catheter without first closing the clamp exposes it to the air, leading to the risk of air entering a blood vessel.**
- **When removing the connection to a central venous line, staff will check that the line on the patient's side is closed by ensuring either that the line is fitted with a closed-system connector or that the clamp is closed.**

* As part of the Project to Collect Medical Near-Miss/Adverse Event Information (a Ministry of Health, Labour and Welfare grant project), this medical safety information was prepared based on the cases collected in the Project as well as on opinions of the "Comprehensive Evaluation Panel" to prevent the occurrence and recurrence of medical adverse events. See quarterly reports and annual reports posted on the Japan Council for Quality Health Care website for details of the Project.
http://www.med-safe.jp/

* Accuracy of information was ensured at the time of preparation but cannot be guaranteed in the future.

* This information is intended neither to limit the discretion of healthcare providers nor to impose certain obligations or responsibilities on them.

Department of Adverse Event Prevention
Japan Council for Quality Health Care
1-4-17 Kandamisaki-cho, Chiyoda-ku, Tokyo 101-0061 JAPAN
Direct Tel: +81-3-5217-0252 Direct Fax: +81-3-5217-0253
http://www.med-safe.jp/