Japan Council for Quality Health Care

Project to Collect Medical Near-Miss/ Adverse Event Information

Medical Safety Information

No.113, April 2016

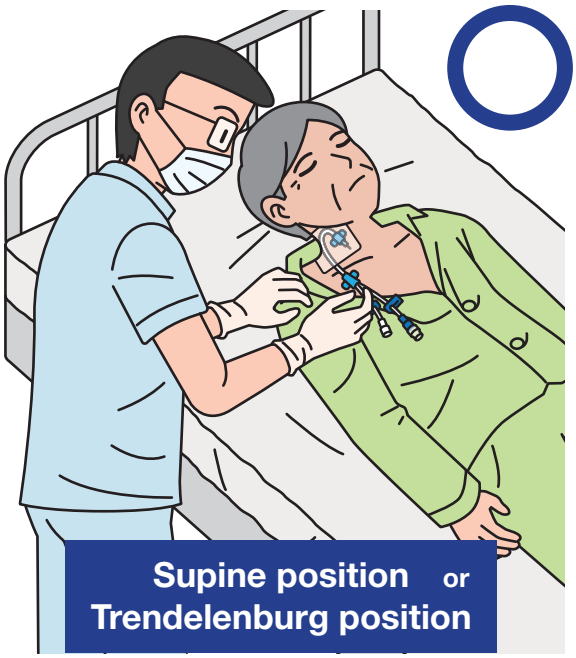
Air Embolism after Removal of a Central Venous Catheter

Three cases have been reported involving air entering a blood vessel because a central venous catheter was removed while the patient was in a sitting position (information collection period: from January 1, 2012 to February 29, 2016). The information is compiled based on “Individual Theme Review” (p.133) in the 43rd Quarterly Report.

Cases of air embolism after removal of a central venous catheter while the patient was in a sitting position have been reported.

Image of case 1

Image of preventive measures taken at the medical institution



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Case 1

When the physician went to the room to remove a central venous catheter (blood access), the patient was sitting down. Unaware of the risks resulting from removal while in a sitting position, the physician allowed the patient to remain seated while removing the central venous catheter. The patient subsequently experienced dyspnea and suffered a cerebral infarction. This was thought to be an air embolism caused by the entry of air into the blood vessel from the site from which the catheter was removed.

Case 2

Unaware that the patient should be placed in the supine position or Trendelenburg position when removing a central venous catheter (double lumen), the resident allowed the patient to remain seated and had him/her hold his/her breath while it was removed. After applying pressure to the site from which the catheter was removed for about three minutes, the resident spent a few minutes removing some stitches remaining in the skin. Just then, the patient complained of feeling unwell and lost consciousness. When a CT was carried out, a small gas pattern was observed in the right internal jugular vein, which was thought to be an air embolism that had occurred after removal of the central venous catheter.

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

- **The institution will prepare a manual for the removal of central venous catheters.**
  - ○ **Place the patient in the supine position or Trendelenburg position.**
  - ○ **Have the patient take a breath and hold it, then remove the catheter.**
  - ○ **Apply pressure to the site from which the catheter was removed for at least five minutes.**
  - ○ **Cover the site from which the catheter was removed with a highly occlusive dressing.**
- **Precautions to be taken when removing central venous catheters will be added to the content of workshops on such catheters.**

* 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.

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