Japan Council for Quality Health Care

Project to Collect Medical Near-Miss/Adverse Event Information

Medical Safety Information

No.146, January 2019

Inadequate checks of Oxygen Remaining (1st Follow-up Report)

Information about cases in which the amount of oxygen remaining in the tank reached zero, affecting the respiratory condition of the patient using the tank was provided in Medical Safety Information No.48 (November 2010) “Failure to check oxygen remaining.” As 9 similar events have been reported since then, information about this issue is provided here again (information collection period: from October 1, 2010 to November 30, 2018). This information was compiled on the basis of the content featured in “Recurrence of Events and Occurrence of Similar Events” in the 44th Quarterly Reports.

Cases have again been reported in which the amount of oxygen remaining in the tank being used by a patient reached zero. Five of these cases involved the use of an oxygen tank not only while the patient was being transferred, but also during an examination or while waiting to be seen.

Circumstances of Oxygen Tank Use	Number of Cases
Use during transfer and at other times	5
Use during transfer only	4

Amount Remaining When Use Began	Oxygen Flow Rate	Background
Full tank	10 L/min Jackson-Rees Circuit	When the patient was waiting to be brought back to the ward, there was no oxygen flow meter attached to the central piping system, so the tube was not switched over because it could not be connected
Full tank	8 L/min	The patient had to wait about 20 minutes before the examination, but the tube was not switched to oxygen administration via the central piping system
Full tank	Unknown	The tube was not switched over to the central piping system during the examination
8 MPa	5 L/min	The medical staff member thought that the patient would be administered oxygen via the central piping system during the examination, so prepared enough for the patient’s transfer, but the tank was also used during the examination because there was no central piping system in the examination room
5–10 MPa	5 L/min	The medical staff member prepared enough oxygen for the transfer between the patient’s room and the examination room, but the oxygen tank was also used during the examination (it is unclear whether or not there was a central piping system)

◆ This is the 1st follow-up report regarding failure to check oxygen remaining, following Medical Safety Information No. 48.

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Case 1

The physician ordered an emergency contrast CT examination because the patient's respiratory condition deteriorated. The nurse checked that the oxygen tank was full, but transferred the patient without checking how long the tank could be used at a flow rate of 8 L/min. The patient was not switched to oxygen administration via the central piping system after arriving in the CT examination room anteroom. About 20 minutes later, when the patient was brought into the CT examination room and preparations for the examination were being made, the patient began open-mouth breathing and their SpO_2 fell to 90%. When the medical staff member checked the amount of oxygen remaining in the tank, they found that it was zero, so they immediately switched the tube to the central piping system and began administering oxygen.

Case 2

The physician ordered an echocardiogram. The nurse confirmed that the amount of oxygen remaining in the tank was 8 MPa, checked how long it could be used for at a flow rate of 5 L/min, and then made preparations, thinking that this amount would be enough for the transfer between the patient's room and the examination room. There was no central piping system in the examination room to which the nursing assistant transferred the patient. The clinical laboratory technologist began the examination with the patient still using the oxygen tank, but did not notice that the amount remaining reached zero during the examination. After the examination ended, when the nurse and the nursing assistant went to the examination room, the patient's facial color was poor and the patient did not respond when called by name. When the medical staff member checked the amount of oxygen remaining in the tank, they found that it was zero.

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

- **Oxygen tanks will be used only when transferring patients and tubes will be switched over to the central piping system promptly where a central piping system is available.**
- **When patients are using an oxygen tank, medical staff members will check the amount remaining in the tank at handover, during the examination, and when the examination ends.**
- **Depending on the amount of oxygen being administered and the patient's condition, a physician or nurse will remain with the patient during examinations.**

* 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 the Project website for details.
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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