Japan Council for Quality Health Care

Project to Collect Medical Near-Miss/ Adverse Event Information

Medical Safety Information

No.191, October 2022

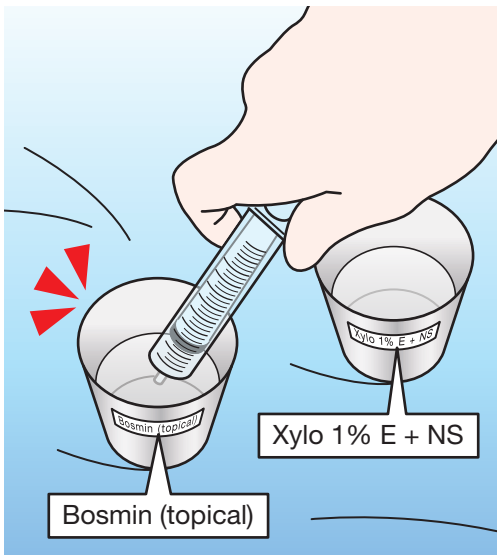
Local Injection of High-Concentration Adrenaline Due to Container Mix-Up

Three cases have been reported in which high-concentration adrenaline was erroneously injected when injecting local anesthetic during surgery, due to the wrong container being picked up (information collection period: from January 1, 2019 to August 31, 2022). This information was compiled on the basis of the content featured in the Details of Events section of the 69th Quarterly Report.

Cases have been reported in which the local injection of high-concentration adrenaline during surgery due to picking up the wrong container affected the patient's hemodynamics.

Concentration of Adrenaline as Local Anesthetic	Concentration of Adrenaline Injected	Main Background Factors
1:200,000 concentration	1:1,000 concentration	• Prepared in a medicine cup with the same shape • Could not see the label affixed to the side
1:300,000 concentration	1:1,000 concentration	• Prepared in a Petri dish with the same shape • The location and presence or absence of a lid were usually used to distinguish the two, but the lid was removed and the dish was placed next to the other
1:100,000 concentration	1:5,000 concentration	• Prepared in a medicine cup with the same shape • The containers were put in separate places, but the container had been moved and placed nearer during surgery

Image of case



◆ In the reported cases, the two drugs were placed in containers with the same shape and the drug name was written on one or both of the containers.

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Case 1

In the sterilized area, the nurse prepared a Xylocaine preparation (1:200,000 concentration of adrenaline) in a medicine cup bearing the label “Xylo 1% E + NS” and Bosmin Solution 0.1% (1:1,000 concentration of adrenaline) in a medicine cup bearing the label “Bosmin (topical).” The physician first used the Xylocaine preparation for local anesthesia. Thinking that the physician would next use a gauze impregnated with Bosmin, the nurse placed the medicine cup marked “Bosmin (topical)” in front. The physician then ordered local anesthetic for a second time. The nurse drew up the drug solution from the medicine cup in front, without checking the label on the side, and passed it to the physician. After the physician injected a total of 4 mL, the patient’s blood pressure rose to 230/130 mmHg and their heart rate to 130 bpm, with sporadic premature ventricular contractions and ST segment depression observed on the monitor. The nurse realized that they had handed over Bosmin Solution 0.1% in error.

Case 2

The nurse prepared a Xylocaine preparation (1:300,000 concentration of adrenaline) and Bosmin Solution 0.1% (1:1,000 concentration of adrenaline) in Petri dishes of the same shape and placed them on the instrument tray. The nurse had placed the two Petri dishes away from each other and written the drug name on the lid of the Petri dish containing the Xylocaine preparation. After surgery began, the physician ordered a Bosmin swab, so the nurse placed the Petri dish containing Bosmin Solution 0.1% next to the Petri dish containing the Xylocaine preparation. The physician subsequently ordered local anesthetic, so the nurse drew up the drug solution from the Petri dish and handed it to the physician. After the physician injected 4 mL, the patient’s blood pressure rose to 270 mmHg and the nurse realized that they had handed over Bosmin Solution 0.1% in error.

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

- **Use containers with different shapes and label them with the drug name in an easily visible location when preparing local anesthetic and adrenaline preparations in the sterilized area.**

The measure above is an example. Please consider initiatives suitable for your own facility.

Key Preventive Measures

- **Consider changing the shape and color of containers, and prescribe internal rules.**

(Comprehensive Evaluation Panel)

* 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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