Project to Collect Medical Near-Miss/Adverse Event Information

Medical Safety Information

May 2025

No.222

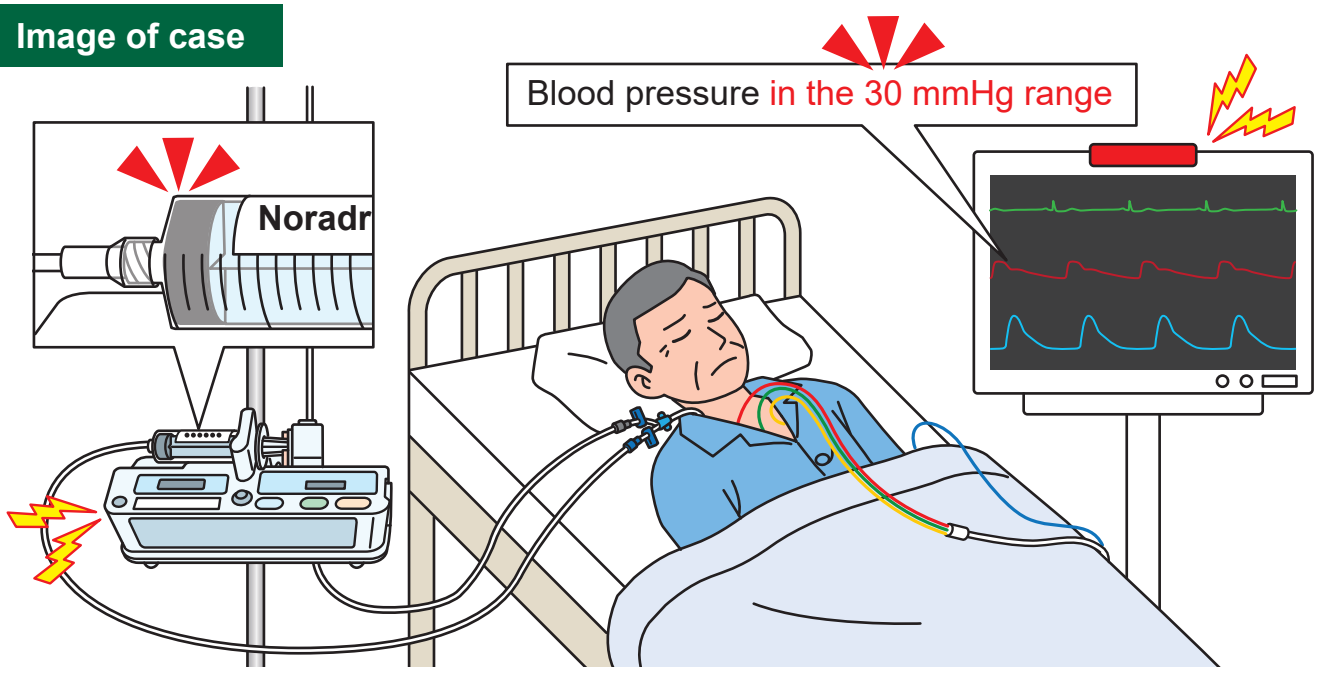
Interruptions to Continuous Administration of Catecholamine Preparations

Cases have been reported in which patients' hemodynamics were affected due to delays in changing the syringe during continuous administration of catecholamine preparations using a syringe pump.

Ten such cases were reported between January 1, 2019 and March 31, 2025. This information was compiled on the basis of the content featured in the Analysis Themes section of the 66th Quarterly Report.

Main Background Factors of Reported Events	
Incorrect prioritization	-The nurse knew that the catecholamine preparation syringe needed to be changed, but prioritized another task. *Multiple reports. -The nurse intended to change the catecholamine preparation syringe after their break, but prioritized dealing with another patient admitted as an emergency.
Lack of knowledge	-The nurse did not know that catecholamine preparations were drugs that could affect hemodynamics.
Lack of communication	-When Nurse A silenced the alarm signaling a low quantity remaining in the syringe, they did not inform Primary Nurse B.

Image of case



Interruptions to Continuous Administration of Catecholamine Preparations

Case 1

Patient X was being continuously administered a noradrenaline preparation at a rate of 9.6 mL/h using a syringe pump. At around 12:30, the primary nurse confirmed that there was 15 mL of the noradrenaline preparation remaining and decided to change the syringe after their break. After returning from their break, the primary nurse prioritized dealing with Patient Y, who had been admitted as an emergency, and did not change the noradrenaline syringe. At around 14:17, the overload alarm on Patient X's syringe pump sounded and their blood pressure had fallen into the 30 mmHg range, so the primary nurse changed the syringe immediately.

Case 2

Patient X was being continuously administered a noradrenaline preparation at a rate of 10 mL/h using a syringe pump. At around 21:10, the alarm signaling a low quantity remaining in the syringe pump sounded, so Nurse A silenced it and informed Primary Nurse B. Primary Nurse B replied that they would change the syringe themself, but did not know about the impact of interruptions to the administration of noradrenaline and prioritized dealing with Patient Y. Five minutes later, the overload alarm sounded. As Primary Nurse B was dealing with Patient Y, Nurse A prepared the noradrenaline and changed the syringe. By the time administration resumed, Patient X's blood pressure had fallen into the 40 mmHg range.

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

-Medical staff on each shift will share information about the types of catecholamine preparation being administered to patients and the times when they need to be changed.

-Medical staff will estimate the time when syringes need to be changed based on the amount of drug solution remaining in the syringe and the flow rate, and will ensure that they do not wait until the last minute to change syringes.

-Medical staff will be informed that interrupting the continuous administration of catecholamine preparations affects patients' hemodynamics.

The measures above are examples. Please consider initiatives suitable for your own facility.

* 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.
https://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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