**PO39   UNWANTED CURARIZATION DURING INDUCTION OF ANESTHESIA DUE TO SIPHON PHENOMENA**

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**Introduction**

Drug infusion systems are extensively used in intraoperative care. Critical incidents may occur due to inappropriate setting of these systems.We report a case of unwanted drug administration due to a physics principle known as siphon phenomena.1 Awareness about the siphon phenomenon and strict compliance with safety precautions while using drug infusion devices accounts for increased safety.

**Case Report**

A 60-yo male was scheduled for elective lumbar surgery. ASA standard monitoring was used plus invasive blood pressure (BP), processed electroencephalogram (EEG) and neuromuscular block (NMB).

A Fresenius Orchestra™ infusion station was used with 3 infusion pumps: 2 were programmed with remifentanil and propofol for TCI and a 3rd received a rocuronium syringe, that was not programmed and had its clamp open. The extenders were coupled to three individual anti-reflux valves and 3-way taps, placed in the IV system (saline at 200mL per hour) and connected to the IV cannula with a 0.9mL extender.

A few seconds later, the patient developed agitation, blurred vision, difficulty keeping the eyes open, dyspnea, and muscle weakness. Left eyelid ptosis, slurred speech, reduced strength in 4 limbs, and reduced chest expansion were observed, but ventilatory drive was maintained. SpO2 dropped to 74% but cerebral oximetry, BP, heart rate, ECG, or EEG monitoring stayed normal (figure 1). Curarization was suspected, oxygen was administered, the patient was reassured and remifentanil was started to allow painless NMB monitoring, revealing a TOF ratio of 64%. No BNM reversal drugs were given, and within 10 minutes the TOF was >90%. The patient remained alert with a sustained and oriented verbal response and respiratory drive. Induction and surgery proceeded uneventfully. After the procedure the patient was calm and described the event with precision.

**Discussion**

A rocuronium leak leading to unwanted curarization was suspected, as the perfusion station was positioned 30cm above the IV access (figure 2). The leak can be explained by siphon phenomena. A siphon is initiated due to the negative pressure generated at the lower end, in which the atmospheric pressure adds to the pressure of the fluid column, displacing the fluid until there is a pressure equilibrium. We did not find any similar case in the literature. By ruling out other causes, this case shows that safety precautions must be consistently applied. The fact that the 3-way tap was open, even with the infusions off, the clamp not closed and the use of anti-reflux instead of anti-siphon valves probably led to the unwanted curarization. We can conclude that understanding physics is relevant to Anesthesia practice and strict compliance with technical recommendations is key for patient safety.

**References**

1-Continuing Education in Anaesthesia Critical Care&Pain,2004,4(3):81–5.


