Severe Sepsis after Intravenous Injection of Contaminated Propofol

To the Editor—Several cases of postoperative sepsis due to intravenous injection of contaminated propofol have recently been reported.1 We describe a severe outbreak of sepsis that underscores the importance of aseptic techniques in the handling of this commonly used anesthetic.

During an 8-h period, four patients who had undergone various clean surgical procedures in the same operating room developed Klebsiella pneumoniae sepsis from a few hours after surgery. Three patients were admitted to intensive care with severe sepsis, two of them in our unit. These two patients developed acute respiratory distress syndrome, refractory septic shock, and multiple organ failure but finally recovered after aggressive supportive therapy. The other two patients also recovered.

Two anesthesiologists had been involved in the care of patients 1 and 2 and of patients 3 and 4, respectively.

The epidemiologic investigation showed that the sepsis was due to injection of contaminated propofol. The same K. pneumoniae strain was identified in a culture of the incriminated propofol and in blood cultures from the four patients. Cultures of unopened vials of propofol from the same lot were negative. The following sequence of events was reconstructed. The evening before surgery, a vial of 500 mg propofol was opened, and the next day (12 h later) the remaining contents of this vial (stored at room temperature) were used to induce anesthesia in patients 1 (at 9 AM) and 2 (at 11 AM).

For the induction of anesthesia in patient 3 (at 2 PM), the remnants of the first vial of propofol were drawn into a syringe, to which was added propofol from a second vial. About 2 h later, patient 4 received propofol from the second vial, which had been contaminated by the syringe used for the third patient. Propofol was given only for induction as a bolus of 150 mg, except in the case of patient 4, who received two boluses of 50 mg for light sedation.

Patients 1–3 presented the most severe sepsis, because the time between contamination of the vial and induction led to infusion of a larger bacterial inoculum.

Other intravenous anesthetics contain preservatives or have low or high pH. By contrast, propofol, a nonpyrogenic, soybean oil–in–water emulsion, contains no preservative or antimicrobial agents. Various microorganisms grow extremely well in propofol.

To avoid severe life-threatening complications due to bacterial growth in contaminated propofol, anesthesiologists should be aware of the manufacturer’s new recommendations for propofol use, which include cleaning of the outside of the ampule with alcohol immediately before opening, preparation of propofol syringes under aseptic conditions immediately before the anesthesia procedure, and use of each vial, catheter, and syringe for only one patient.

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References


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