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Bupivacaine crystal deposits after long-term epidural infusion

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The case of a 45-year-old male patient (body weight 52 kg, height 1.61 m) with a locally invasive gastric carcinoma infiltrating into the retroperitoneal space is reported. Because of severe cancer pain a tunnelled thoracic epidural catheter (EC) was placed at thoracic spinal level 7/8 and a local anesthetic (LA) mixture of bupivacaine 0.25% and morphine 0.005% was infused continuously at 6 ml h⁻¹. To optimize pain therapy the concentration was doubled (bupivacaine 0.5%, morphine 0.01%) 3 months later but the infusion rate was reduced to 3 ml h⁻¹ thus the total daily dose did not change. The patient died 6 months after initiation of the epidural analgesia from the underlying disease. The total amount of bupivacaine infused was 69 g and of morphine 1.37 g. The patient never reported any neurological complications. The autopsy revealed large white crystalline deposits in the thoracic epidural space which were identified as bupivacaine base by infrared spectrometry. Morphine could not be detected. A histological examination showed unreactive fatty tissue necrosis within the crystalline deposits but nerve tissue could not be identified. It is concluded that the bupivacaine crystalline deposits arose due to precipitation but the clinical significance with regard to sensory level and neuraxial tissue toxicity is unknown.

Actually, only two human cases with complications of bupivacaine crystalline deposits after long-term application of local anesthetics are known.

Biography

Ingrid Balga has completed her Dr. med. at the age of 27 years from Bern University, Switzerland. She worked as an anesthesiologist (main topics: adult and pediatric anesthesia, pain medicine) at Kantonsspital Lucerne, Switzerland and actually specialises as an anesthesiologist for cardiac anesthesia, Heart Centre Leipzig, Germany. She has published several papers with the topics of pain medicine, pediatric postoperative quality management and hematology.

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