

Letter

Intrathecal colistin for treatment of *Pseudomonas aeruginosa* ventriculitis: report of a case with successful outcome

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Infection of the ventricular cavity and of the ependymal lining is most often iatrogenic in origin, being a complication of a shunting procedure or of intrathecal chemotherapy. The emergence of multidrug-resistant Gram-negative bacteria and the lack of new antibiotics to combat them have led to the revival of polymyxins, an old class of cationic, cyclic polypeptide antibiotics.

Polymyxin B and polymyxin E (colistin) are the two polymyxins used in clinical practice. Colistin is a polymyxin-type antibiotic, disrupting the structure of Gram-negative organisms' cell membranes, rarely used parenterally because it has nephrotoxic side effects. The polymyxins are active against selected Gram-negative bacteria, including *Acinetobacter* species, *Pseudomonas aeruginosa*, *Klebsiella* species and *Enterobacter* species [1]. We report a case of multidrug-resistant *P. aeruginosa* ventriculitis treated successfully with intrathecal colistin.

A 16-year-old boy who had a car accident required hospitalization and underwent multiple surgeries, including decompressive craniectomy and placement of ventriculo-peritoneal and ventriculoatrial shunts. The ventriculoatrial shunt subsequently became colonized with *P. aeruginosa* and was removed, and was then replaced with an external ventricular drainage catheter. Cerebrospinal fluid cultures demonstrated multiresistant *P. aeruginosa*. Intravenous amikacin was initiated initially but there was no change in the patient's clinical situation. Therapy was then changed to intrathecal colistin 5 mg/day via the external ventricular drainage catheter, and the cerebrospinal fluid white blood cell counts and cerebrospinal fluid cultures were followed to assess efficacy. The patient's response to therapy was observed with a decrease in the cerebrospinal fluid white blood cell count in the following days and with subsequent sterilization of cultures. His clinical situation became well and weaning from the mechanical ventilation was initiated.

There are few case reports about the treatment of ventriculitis with intrathecal use of colistin. In a case report, meningitis caused by a multiresistant Gram-negative rod was successfully treated with intrathecal colistin 5 mg/day on day 1 and with 10 mg intrathecal colistin per 24 hours for 21 days thereafter [2].

We used intrathecal colistin 5 mg/day for 21 days for the treatment of multidrug-resistant *P. aeruginosa* and succeeded without any side effects. Our experience shows that intrathecal colistin is a safe and curative treatment drug for multidrug-resistant *P. aeruginosa* ventriculitis.

Competing interests

The author(s) declare that they have no competing interests.

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