Short Communication

TREATMENT OF MULTIRESISTANT GRAM NEGATIVE VENTRICULITIS WITH INTRAVENTRICULAR CIPROFLOXACIN

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ABSTRACT

Central nervous system infection remains an important cause of mortality and morbidity in patients with open spinal dysraphism.

Two cases of myelochisis with multiresistant Klebsiella Ventriculitis were treated with intraventricular ciprofloxacin for persistently positive CSF cultures after commencement of iv quinolone treatment. The patients were cured both clinically and microbiologically. No significant adverse effects were observed in any of these patients.

Case One. A full term baby boy weighing 3.4 kg at birth was transferred to our neonatal intensive care unit for his lumbar myelochisis and had primary repair on the same day. He had meningitis, ventriculitis and significantly enlarged ventricles on the ultrasound. Initial treatment included externalised ventricular drainage and iv antibiotics (meropenem and amicasin). The CSF culture yielded Klebsiella pneumoniae which was sensitive to quinolones, imipenem and less sensitive to amicasin. On the fifth day of meropenem and amicasin therapy the baby was still ill with positive CSF cultures. The antibiotherapy had to be changed to intraventricular amicasin and iv ciprofloxacin (1,2). On the fifth day of this therapy the baby was not cured both clinically and microbiologically. At this time intraventricular ciprofloxacin (1mg/kg/day) was begun via an external drainage system, and we had significant clinical improvement within days. Sterilization of CSF was obtained after three days of intraventricular ciprofloxacin therapy and the therapy was continued for 15 days.

Case Two. A full term baby boy weighing 2.8 kg at birth had a myelochisis repair on the fourth day of life. He was put on vancomycin and cefotaxime for his meningitis and ventriculitis. Klebsiella pneumoniae was isolated from the ventricular fluid which was sensitive only to quinolones and imipenem and the antibiotics were changed accordingly. On the seventh day of antibiotherapy CSF cultures were still positive and he was not cured clinically as well. Intraventricular ciprofloxacin (1mg/kg/day) via external drainage system, resulted in dramatic clinical improvement and sterile CSF was obtained after 4 days of treatment. The therapy was continued for 15 days until the patient remained asymptomatic and had at least three negative ventricular fluid cultures which were taken every three days.

DISCUSSION

Intraventricular therapy in neonatal meningitis is contentious mainly because the trial of intraventricular gentamicin in neonatal gram negative

meningitis showed a worse outlook for those so treated (3). But consideration should be given to using this form of treatment when infecting organisms are only sensitive to antibiotics with poor penetration of the cerebrospinal fluid (CSF) and for cases in which intravenous (iv) therapy has failed to sterilise the CSF. Toxicity from systemic therapy precludes further increases in dosages and shunts or other CSF hardware might be expected to reduce the efficacy of systemic therapy by providing a foreign body to harbor the organisms (1,4,5).

Intraventricular quinolone injection was studied only in rats (6). Intrathecal injection of ciprofloxacin and levofloxacin were reported to induce convulsions in mice (7). Searching through the literature revealed no information about intraventricular quinolone therapy in humans.

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