Intrathecal Colistin For Treatment Of Acinetobacter Spp Meningitis: Case Report

S Sahin, A Selik, D Memis

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Abstract

We report a case of meningitis caused by a multiresistant gram-negative rod that was successfully treated with intrathecal colistin.

A 30-year-old boy who had a car accident required hospitalization, including decompressive craniectomy and placement of an external ventricular drainage catheter. Cerebrospinal fluid and blood cultures demonstrated Acinetobacter spp. Intravenous colistin was initiated initially but there was no change in the patient's clinical situation. Therapy was added to intrathecal colistin 5 mg/day via the external ventricular drainage catheter, and cerebrospinal fluid cultures were followed to assess efficacy.

Our experience shows that intrathecal colistin is a safe and curative treatment drug for multidrug-resistant Acinetobacter spp menengitis.

INTRODUCTION

In a large series of adults with acute bacterial meningitis Acinetobacter spp. were found to be responsible for approx. 10% of Gram negative bacillary and 4% of all nosocomial meningitides([1]) Treatment of meningitis due to multi-drug resistant Acinetobacter spp. can be difficult. Colistin, an antibiotic first discovered almost 60 years ago, has not been used greatly since the early 1980s because of its nephrotoxicity, except in patients with cystic fibrosis ([2,3]). However, it has been reintroduced recently in clinical practice as a last resort for treatment of nosocomial infections caused by multiresistant bacteria ([4,5]). In this report we describe the use of intrathecal colistin for treatment of multidrug-resistant Acinetobacter spp menengitis meningitis therapy.

CASE REPORT

A 30-year-old boy who had a car accident required hospitalization, including decompressive craniectomy and placement of an external ventricular drainage catheter. The patient was not on any medication, had no history of alcohol abuse and had an unremarkable medical record. He transferred intensive care unit and respiratory support was started. His physical examination during admission was fever (38.10C), heart (100/min) rates, decreased arterial blood pressure (100/50 mmHg). Leukocyte count 13.21 mm3, hemoglobin 12.7 g/dl, haematocrit 37.5 %, platelet 272.000 mm3, electrolytes were normal. He was treated with intravenous kolloid and crystolloid infusion, dopamine 5 ?g/kg/min. and antipyretic. Cerebrospinal fluid and blood cultures demonstrated Acinetobacter spp. Intravenous colistin was initiated initially but there was no change in the patient's clinical situation. Therapy was added to intrathecal colistin 5 mg/day via the external ventricular drainage catheter, and cerebrospinal fluid cultures were followed to assess efficacy. The patient had a successful outcome. Three weeks after finishing the intrathecal treatment, the patient underwent the last drainage with no complications.

DISCUSSION

Some cases of bacterial meningitis cannot always be treated intravenously with conventional antimicrobial agents. Inadequate therapy for infections acquired in the intensive care unit (ICU) is associated with increased mortality ([6]), but the frequent use of broad-spectrum antibiotics means that the ICU environment has become a theatre for selection of multiresistant microorganisms. Infections caused by multiresistant Gram-negative bacteria such as Pseudomonas aeruginosa and Acinetobacter spp. have become a serious problem worldwide ([7]). Patients with meningitis due to multiresistant gram-negative rods should be treated intrathecally with polymixin B or colistin used. Multiresistant Acinetobacter spp. are frequently the etiologic agent of nosocomial infections, and 90% of these strains are

susceptible to colistin. We used intrathecal colistin 5 mg/day for 21 days for the treatment of multidrug-resistant Acinetobacter spp .and succeeded without any side effects.

Renal injury is the major adverse effect of colistin. In the largest study to date, published in 1970, frequently reversible renal impairment was found in 20% of patients receiving colistin ([8]). This possibility of renal toxicity should be considered seriously, especially when colistin is used as a last resort in patients prone to renal dysfunction because of illness severity and ? or sepsis. However, renal function impairment should not be attributed solely to colistin toxicity as other factors, e.g., the development of septic shock and multi-organ failure, may also make a significant contribution. Indeed, previous studies have shown that advanced age, severe sepsis, major surgery, low cardiac output syndrome and hypovolaemia are all common conditions associated with acute renal failure in the ICU setting ([9,10,11]). Renal function impairment were not development in our patient.

John et al ([12]) reported intraventricular or intrathecal colistin is effective and well tolerated apart from reversible chemical meningitis/ventriculitis and should be considered for Multidrug-resistant Acinetobacter baumannii (MRAB) CNS infection.

In conclusion, intrathecal colistin appears to be relatively safe and effective in treating severely ill ICU patients with infections caused by multiresistant Gram-negative bacteria. Clinicians should be vigilant for renal function deterioration during colistin therapy

CORRESPONDENCE TO

Anaesth Dr Sevtap Hekimoglu Sahin Trakya University Medical Faculty, Department of Anaesthesiology and Reanimation, 22030, Edirne, TURKEY Tel No : 0 90 284 2357641/3200 Fax No: 0 90 284 2358096 E-mail. sevtaphekimoglu@mynet.com

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Author Information

Sevtap Hekimoglu Sahin, MD
Anaesthesia Dr., Department of Anaesthesia and Reanimation, Trakya Univ. Medical Faculty

Aygul Selik, MD
Infection Dr., Department of Infection, Trakya Univ. Medical Faculty

Dilek Memis, MD
Associate Professor, Department of Anaesthesiology, Trakya Univ. Medical Faculty