INTRATHecal COLISTIN THERAPY FOR MULTIDRUG RESISTANT NOSC0mIAL MENINGITIS

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BACKGROUND:

Acinetobacter baumannii has emerged as an important multidrug resistant (MDR) healthcare-associated pathogen\(^1\). Meningitis caused by this MDR pathogen is an extremely rare incident in day to day practice\(^2\). The reported mortality from this infection exceeding 15\%. Infectious Diseases Society of America guidelines for therapy of postneurosurgical meningitis recommend either ceftazidime or cefepim as empirical coverage against Gram-negative pathogens. However, assessment of the pharmacodynamics of these cephalosporins in cerebrospinal fluid suggests that recommended doses will achieve pharmacodynamic targets against fewer than 10% of contemporary acinetobacter isolates. For cases of meningitis due to carbapenem-resistant acinetobacter, use of tigecycline is not recommended on pharmacodynamic grounds\(^3\). The greatest clinical experience rests with use of polymyxins\(^4\). Intravenous administration of Colistin or other polymyxins may not be enough to meet the desired endpoint, addition of an intraventricular or intrathecal dose is supposed to be the key to a successful outcome\(^5\).

METHOD:

A 52 years old lady admitted in ITU following road traffic accident with fracture of paranasal sinuses, CSF rhiorhea and altered sensorium. She was intubated and mechanically ventilated. She was otherwise stable but on 6th post admission day there were a few febrile spikes. TLC was 22800 (Neutrophils 90%), increased ET secretion, X-ray chest showed right lower opacity. Considering a case of ventilator associated pneumonia (VAP) empirical antibiotic therapy was started with inj Meropenem 1gm IV TID, after sending ET suction for gram stain and culture.

RESULTS:

The gram stain results were suggestive of gram negative coccobacilli. Acinetobacter was suspected as the organism causing VAP & inj colistin was added to the existing regime at a dose of 9 million units loading followed by 3 million units TID.

On the next day the C/S report was available. Acinetobacter baumannii was isolated & was sensitive to colistin (MIC<0.5) but resistant to meropenem (MIC>16). Antibiotic combination therapy continued and patient became afebrile after 48 hours.

On day 11, the patient again developed febrile spikes with drowsiness and neck rigidity. Lumbar puncture was done, CSF found to be cloudy, Cell count = 460 (Neutrophils 92%), protein = 78mg/dl, sugar 31mg/dl,

The results were suggestive of bacterial meningitis. Gram staining was done & again gram negative coccobacilli were obtained. Considering a case of acinetobacter meningitis from gram stain & previous acinetobacter infection, intrathecal inj. colistin was started at a dose 10mg/day, along with iv colistin as before. Inj meropenem was stopped.

Culture of CSF grew Acinetobacter baumannii with some antibiotic sensitivity. Within next couple of days patient became afebrile again. She was extubated on 17\textsuperscript{th} day. The treatment continued for a period of two weeks with intermittent screening culture of CSF, till it became microbiologically negative.

She was discharged on the 27\textsuperscript{th} post admission day.

CONCLUSION:

Colistin can’t achieve adequate CNS concentration after IV administration due to poor penetration through the blood brain barrier. From our case it was seen that such patients with CNS infection caused by MDR Acinetobacter sp. susceptible to colistin, may benefit from adjuvant intrathecal colistin therapy, along with IV colistin.

REFERENCES:


8. LPD of TYGQOL Lysophilized Powder for Injection. Wyeth LLC. USA, Version 2.0; LPTYG122012.


