"CEFEPIME/ZIDEBACTAM (WCK 5222) AS A PROMISING OPTION IN THE TREATMENT OF PAN-DRUG RESISTANT *PSEUDOMONAS AERUGINOSA* LUNG EMPYEMA IN A PAEDIATRIC PATIENT: A CASE REPORT"

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INTRODUCTION

Managing infections caused by extensively drug-resistant (XDR) Pseudomonas aeruginosa in critically ill patients poses significant challenges due to the lack of effective treatment options. However, a potential solution has emerged with the development of **cefepime/zidebactam (WCK 5222).** It is a promising antibiotic currently in development that combines cefepime, an approved cephalosporin, with zidebactam, a novel beta-lactam enhancer (BLE). The combination has been shown to improve potency against drug-resistant GNR, including *Enterobacteriaceae, Pseudomonas aeruginosa,* and *Acinetobacter baumannii*.

Cefepime/Zidebactam (WCK 5222), is a revolutionary combination therapy that is currently undergoing a global Phase 3 trial for adult patients with complicated urinary tract infections or acute pyelonephritis (ClinicalTrials.gov identifier: NCT04979806).

CASE REPORT

We present the case of a 13-year-old patient who initially presented with complaints of sudden onset breathlessness, cough since 2 months, intermittent fever since 1 week, loss of weight, and loss of appetite. The chest x-ray showed pneumothorax, and an ICD was placed for emergency use. HRCT chest done showed right huge cavitatory lesion, suggestive of necrotizing pneumonia.

She was evaluated and found to have Drug sensitive tuberculosis (Sputum TB GeneXpert detected low/ No Rif resistance detected) and the patient was initiated on 1st line weight-based ATT regimen.

During the course she received multiple courses of colistin and ceftazidime-avibactum plus aztreonam for CRPA (Carbapenem-resistant Pseudomonas aeruginosa) empyema.

TREATMENT & FOLLOWUP

Later she was referred to us when she had **Pan drug resistant pseudomonal empyema**. Hence, this patient required a novel drug like Cefepime Zidebactam which can work in this scenario.

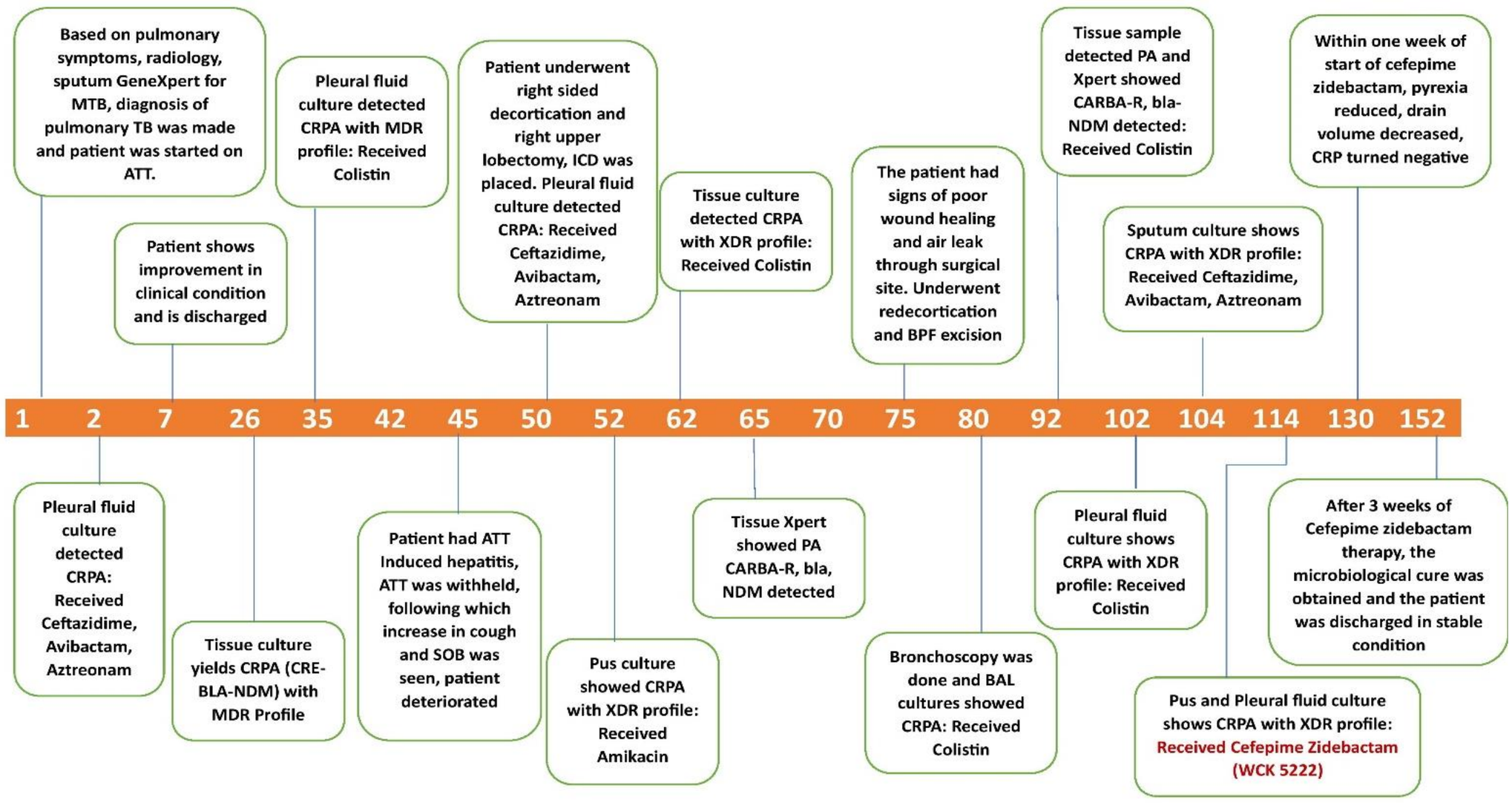
Following the susceptibility testing of cefepime/zidebactam on our ***Pseudomonas aeruginosa*** culture, and obtaining the necessary permissions from the Drugs Controller General of India, WCK 5222 was prescribed. The MIC of cefepime/zidebactam was determined according to CLSI M100 Ed 32 USA guidelines and noted to be 16 mg/L, which is below the PK/PD breakpoint of ≤32 mg/L. Based on this data, cefepime/zidebactam monotherapy was initiated on day 130, as per the manufacturer's dosing instructions, under compassionate use.

The patient's clinical condition gradually improved, with the fever resolving within one week of therapy. Continuous administration of cefepime/zidebactam for three weeks resulted in significant improvements in respiratory parameters. The volume of the ICD drain also gradually decreased. On day 21 of cefepime/zidebactam treatment, pleural fluid was collected to demonstrate a microbiological cure. There were no reported adverse drug events. After receiving 21 days of continuous cefepime/zidebactam therapy, the patient was discharged.

CONCLUSION

The presented case demonstrates the successful use of cefepime/zidebactam in managing a complex infection caused by carbapenem-resistant Pseudomonas aeruginosa in a critically ill paediatric patient.

The treatment with WCK 5222 led to gradual improvement, achieving a microbiological cure without any reported adverse effects. This highlights the potential of cefepime/zidebactam as a novel and effective therapeutic option for challenging infections caused by extensively drug-resistant pathogens like Pseudomonas aeruginosa.



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