Original Research Article

**Pan-Drug resistant *Pseudomonas aeruginosa* in Obstructive Uropathy Patient: A Case Study**

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**ABSTRACT**

Infection caused by Multidrug resistance bacteria present daily challenges to infectious diseases to physicians and their patients throughout the world. This study evaluates the clinical and microbiological characteristics of patient, who was infected pan-drug resistance *Pseudomonas aeruginosa* in obstructive uropathy in MGM Medical College and Hospital. PDRPA is defined as intermediately-resistance or resistance to all cephalosporin, Piperacillin-Tazobactam, Aztreonam, Carbapenem, Ciprofloxacin and Aminoglycosides. Isolate showed susceptibility to colistin (MIC 2 mcg/ml) by E- test.

**Keywords**

Pan-drug resistance

*Pseudomonas aeruginosa* (PDRPA).

**Introduction**

*Pseudomonas aeruginosa* is one of the main organisms responsible for drug resistance in nosocomial infection¹. To being intrinsically resistance to several antimicrobial agents, *Pseudomonas aeruginosa* acquired resistance to readily conventional anti-pseudomonal antibiotics following prolonged use of these antibiotics in hospitalised patients particularly patients in intensive care units (ICU)²,³.

Anti-pseudomonal β-lactams, fluoroquinolone, aminoglycosides and carbapenem are used for treating *Pseudomonas aeruginosa* infection⁴ and intensive use of these antimicrobials facilitates rapid drug resistance in this species⁵.

**Case study**

A 40 years old male patient was admitted in MGM Medical College and Hospital, Kamothe Navi Mumbai, India. He was having symptoms of urinary tract infection (UTI) like frequency of micturation for last 10 days and fever for 2 days of date of
admission. Patient had history of renal calculus; He had operated 2 months back. He was with D J stenting. Appendectomy was done. One month back, patient developed symptoms of urinary obstruction. Cystoscopy was done, which revealed stricture of urethane. Suprapubic cystotomy (SPC) was done.

Antibiotic (Ceftriazone + sulbactam and Amikacin) were started prior antibiotic sensitivity testing. Patient was not responding to these antibiotics. We received patient’s Urine sample for culture, which showed growth of *Pseudomonas aeruginosa* which was resistant to all first line and second line antibiotics. Pan-drug resistant was confirmed according to EUCAST criterion⁶.

**Antibiotic susceptibility testing:**

**First line Antibiotics**

![Photograph No.1: *Pseudomonas aeruginosa* showing resistance to all first line antibiotics.](image1)

**Second line Antibiotics:**

![Photograph No.2: *Pseudomonas aeruginosa* showing resistance to all second line antibiotics](image2)
Third line Antibiotics:

Photograph No.3: *Pseudomonas aeruginosa* showing resistance to all third line antibiotics

**MIC OF COLISTIN:**

Photograph No.4: MIC of Colistin with Pandrug resistant *Pseudomonas aeruginosa* (PDPRA)

**Discussion**

The emergence of antibiotic resistance in *Pseudomonas aeruginosa* (PSA) and its spread has been a serious challenge to the clinicians.

In this study, PDRPA was isolated from a 35 years old male patient suffering from UTI. Jyoti Sharma et al also isolated 42 PAN drug resistant pseudomonas aeruginosa (PDRPA) from 4912 urine samples. P. R Hsueh et al. also supported the result by isolating PDRPA from 3 urine samples.

In this study, isolated PDRPA was sensitive to only Colistin. According to the
Matthew E Falagas et al, resistant *Pseudomonas aeruginosa* exhibited a greater than 98% susceptibility to colistin. Brice Layeux et al also supported the result by showing Colistin sensitivity of PDRPA.

A search of PubMed and Current Contents databases revealed only 2 reports in which Gram negative bacteria were resistant to colisitin. Both of them referred to cystic fibrosis patients.

We should acknowledge limitation of this study, that molecular typing was not performed thus the possibility that PDR isolates derived from the previous isolated microorganisms cannot be determined.

In summary, the emergence of PDRPA may be a harbinger of the so-called post-antibiotic era. A stringent antibiotic control policy should be exercised as part of efforts to control the emergence and spread of these multiresistant organisms, and strict compliance with infection control measures is essential to reduce the likelihood of nosocomial spread of infection.

References


