**THE INCIDENCE AND SUSCEPTIBILITY PATTERN OF PSEUDOMONAS AERUGINOSA OF CYSTIC FIBROSIS PATIENTS**

**Eren Fidan E. 1, Karahasan A. 1, Koldaş S. S.1 , Altınkanat Gelmez G. 1, Gökdemir Y.2, Erdem Eralp E.2, Karadağ B.2**

**1Marmara University Faculty of Medicine, Medical Microbiology Department, İstanbul**

**2Marmara University Hospital, Pediatric Pulmonology Division, İstanbul**

**Aim**

*Pseudomonas aeruginosa* is the most important cause of lung infection among Cystic Fibrosis (CF) patients. In order to reduce the severity of the infection in CF, it is crucial to start empirical antibiotic therapy before getting the antibiotic susceptibility results and facility-specific cumulative antibiograms are very useful for clinicians in this manner. The purpose of this study is to determine the incidence and the cumulative antibiogram data of *Pseudomonas* strains isolated from patients with CF in Marmara University Hospital.

**Material-Method**

Respiratory samples of 250 CF patients followed by Pediatric Pulmonology Division which accepted to Microbiology Laboratory between 2015 January-2017 December scanned through Laboratory Operating System retrospectively. Demographical data of patients, culture results and antibiotic susceptibilities if exists are recorded using Microsoft Excel 2010. Cumulative antibiogram data obtained according to CLSI M39 A4 document.

**Results**

*Pseudomonas aeruginosa* is isolated from 196 samples of 50 different patients in 2015, 279 samples of 72 patients in 2016 and 421 samples of 110 patients in 2017. The type and number of samples and their distribution by years is shown in Table 1. Average ages of patients are 14.5, 14.3 and 12.4 in 2015, 2016 and 2017 respectively. About %45 of patients were female. Cumulative antibiogram data of *Pseudomonas aeruginosa* is shown in Table 2.

**Conclusions**

In our institution, the first choice antimicrobials in severe acute exacerbations is the combination of ceftazidime-amikacin. Oral ciprofloxacin is commonly used for prophylaxis and treatment in mild exacerbations. The susceptibility to ceftazidime and amikacin decreased significantly in years , probably due to excessive usage. Fifty percent of the strains were resistant to ciprofloxacin, so empirical use of this antimicrobial should be revised. Although there is insufficient evidence concerning in vivo – in vitro correlation of antimicrobial susceptibility test results, according to our data we are about to lose our guns against bacteria due to chronic use. We believe that this data will be very useful for clinicians when they are planning antimicrobial therapy and increase our awareness of a big challenge; ***antimicrobial resistance.***

Table 1. Type and number of Pseudomonas isolated samples and their distribution by years

|  |  |  |  |
| --- | --- | --- | --- |
| Sample type | 2015 | 2016 | 2017 |
| Sputum | PSE | Total | PSE | Total | PSE | Total |
| 181\*(%60) | 302 | 238\*(%57) | 417 | 314\*(%55) | 570 |
| Bronchoalveolar lavage | 1 | 5 | 8 | 16 | 1 | 4 |
| Deep tracheal aspiration | 1 | 19 | - | 5 | 2 | 2 |
| Endotracheal aspiration | 12 | 223 | 17 | 227 | 5 | 52 |
| Nazopharengeal aspiration | 1 | 157 | 16 | 362 | 8 | 111 |
| Deep pharengeal swab | - | - | - | - | 91\* (%18) | 514 |
| Total | 196\* (%28) | 706 | 279\*(%27) | 1027 | 421\*(%36) | 1253  |

Table 2. Cumulative antibiogram of *Pseudomonas aeruginosa* shown as percentage of susceptible strains

|  |  |
| --- | --- |
|  | %S |
| *Pseudomonas aeruginosa* | **No.Strains** | **TZP** | **CAZ** | **AN** | **GN** | **NN** | **CIP** | **FEP** | **MEM** | **İMP** |
| 2015 | 148 | 82.17 | 84.45 | 61.90 | 57.14 | 80.95 | 56.08 | 80.40 | 80.40 | 72.97 |
| 2016 | 216 | 76.38 | 74.17 | 44.44 | 73.70 | 74.07 | 42.32 | 78.60 | 67.35 | 64.81 |
| 2017 | 316 | 79.3 | 76.2 | 43.3 | 48.3 | 77.6 | 51.4 | 69.6 | 68.7 | 61.5 |

TZP: Piperacillin-Tazobactam, CAZ: Ceftazidime, AN: Amikacin, GN: Gentamicin, NN: Tobramycin, CIP: Ciprofloxacin, FEP: Cefepime, MEM: Meropenem, IMP: Imipenem