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## PENGOLEKSIAN ISOLAT- ISOLAT *Pseudomonas aeruginosa* DARI PASIEN DI SURABAYA DAN PEMETAAN KEPEKAANNYA TERHADAP BERBAGAI MACAM ANTIBIOTIKA

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### Abstract

The investigation about collectivity and sensitivity test of *Pseudomonas aeruginosa* from patient in Surabaya have been done. The aim of this research is to collect the bacteria from patient and to know the profile of their sensitivity toward the variety of antimicrobial agents. *P. aeruginosa* isolates were collected from two microbiological laboratory in Surabaya. Then, each isolate was purified and reconfirmed of few of its properties. Purified *P. aeruginosa* collections were then store in  $-70^{\circ}\text{C}$ . Sensitivity test for each isolate was done toward 13 kinds of antimicrobial agents. The conclusions of the results were it have been collected 52 *Pseudomonas* isolates during June to October 2003, 4 of them are *Pseudomonas* spp, 25 others are *P. aeruginosa* and the rest of them are presumably to be *P. aeruginosa*. The twenty-five *P. aeruginosa* isolates showed that the highest resistance percentage were toward the tetracycline (96%), chloramphenicol (92%) and Trimethoprim-Sulfamethoxazole (88%); whereas the highest sensitivity percentage were showed toward ciprofloxacin and amikacin (88% respectively), imipenem, Ceftazidime, gentamicin, and netilmisin (that were 84, 80, 80 and 80% respectively).

Keywords : *Pseudomonas aeruginosa*, collectivity, antibiotics sensitivity

### PENDAHULUAN

Penyakit infeksi di Indonesia masih merupakan penyakit yang paling banyak dijumpai, yaitu sekitar dua pertiga dari jumlah semua penyakit yang ada (1). Penyakit infeksi bisa diderita pasien setelah pasien masuk rumah sakit dan menjalani perawatan di rumah sakit; infeksi semacam ini disebut infeksi

nosokomial (Soewandojo, 2001). Hingga saat ini infeksi nosokomial merupakan masalah di seluruh dunia, tidak hanya di Indonesia, karena mempengaruhi angka kematian dan meningkatkan biaya perawatan atau pengobatan pasien di rumah sakit.

Mikroorganisme yang dilaporkan sering menyebabkan infeksi nosokomial salah sa-

## DAFTAR PUSTAKA

- Anonim. 2001. Mc Farland Standards Barium Sulfate Turbidity, Technical Data Sheet # 500 Rev.2, PML microbiologicals, Inc., 1,2.
- Bouza, E., Garcia-Garrote, F., Cercenado, E., Marin, M., Diaz, M. S. 1999. *Pseudomonas aeruginosa*: a Survey of Resistance in 136 Hospitals in Spain. *Antimicrob. Agents Chemother.*, 43:981-982.
- Carmeli, Y., N. Troillet, G. M. Eliopoulos, and M. H. Samore. 1999. Emergence of Antibiotic-Resistant *Pseudomonas aeruginosa*: Comparison of Risks Associated with Different Antipseudomonal Agents. *Antimicrob. Agents Chemother.*, 43:1379-1382.
- Cavallo, J.D., R. Fabre, F. Leblanc, M.H. Nicolas-Chanoine, A. Thabaut and the GERPB. 2000. Antibiotic susceptibility and mechanisms of  $\beta$ -lactam resistance in 1310 strains of *Pseudomonas aeruginosa*: a French multicentre study (1996). *J. Antimicrob. Chemother.*, 46:133-136.
- Collins, Lyne M., and Grange JM. 1989. *Microbiological Methods*, 6th edition, (p 241-242), London : Butterworth and Co (Publisher) Ltd.
- Dubois, V., Arpin, C., Melon, M., Melon, B., Andre, C., Frigo, C., Quentin, C. 2001. Nosocomial Outbreak Due to a Multiresistant Strain of *Pseudomonas aeruginosa* P12: Efficacy of Cefepime-Amikacin Therapy and Analysis of  $\beta$ -Lactam Resistance. *J. Clin. Microbiol.*, 39: 2072-2078.
- Dwiprahasto, I. 1995. Masalah Penggunaan Antibiotika: Penggunaan Antibiotika Rasional, (hlm. 2-16), Yogyakarta : Laboratorium Farmakologi Fakultas Kedokteran Universitas Gadjah Mada.
- Estahbanati HK, Kashani PP, Ghanaatpisheh F. 2002. Frequency of *Pseudomonas aeruginosa* Serotypes in Burn Wound Infections and Their Resistance to Antibiotics. *Journal of Burnes and Surgical Wound Care*, 2:340-8.
- Ferraro, Craig, Dudley, Eliopoulos, Hecht, Hindler, Reller, Sheldon, Swenson, Tenover, Testa, Weinstein, Wikler. 2002. Performance Standards for Antimicrobial Susceptibility Testing; Eleventh Informational Supplement, Vol 22 No.1, Pennsylvania : The National



Committee for Clinical Laboratory Standards.

- Gales, A. C., R. N. Jones, J. Turnidge, R. Rennie, and R. Ramphal. 2001. Characterization of *Pseudomonas aeruginosa* isolates: occurrence rates, antimicrobial susceptibility patterns, and molecular typing in the global SENTRY antimicrobial surveillance program, 1997-1998. *Clin. Infect. Dis.*, 32:S146-S155.
- Genger, S., öznur Ak, N. Benzonana, A. Bat rel and S. özer. 2002. Susceptibility patterns and cross resistances of antibiotics against *Pseudomonas aeruginosa* in a teaching hospital of Turkey. *Annals of Clinical Microbiology and Antimicrobials*, 1:2.
- Gold, H. S., and R. C. Moellering. 1996. Antimicrobial-Drug Resistance. *The New England Journal of Medicine*, 335:1445-1453.
- Henwood, C. J., Livermore, D. M., James, D., Warner, M., *Pseudomonas* Study Group. 2001. Antimicrobial susceptibility of *Pseudomonas aeruginosa*: results of a UK survey and evaluation of the British Society for Antimicrobial Chemotherapy disc susceptibility test. *J. Antimicrob. Chemother.*, 47:789-799.
- Lepper, P. M., E. Grusa, H. Reichl, J. Hogel, M. Trautmann. 2002. Consumption of Imipenem Correlates with {beta}-Lactam Resistance in *Pseudomonas aeruginosa*. *Antimicrob. Agents Chemother.*, 46: 2920-2925.
- Livermore, D.M. 2002. Multiple Mechanisms of Antimicrobial Resistance in *Pseudomonas aeruginosa*: Our Worst Nightmare? *Clin. Infect. Dis.* 34:634-40.
- Luzzaro, F., E. Mantengoli, M. Perilli, G. Lombardi, V. Orlandi, A. Orsatti, G. Amicosante, G. M. Rossolini, and A. Toniolo. 2001. Dynamics of a Nosocomial Outbreak of Multidrug-Resistant *Pseudomonas aeruginosa* Producing the PER-1 Extended-Spectrum {beta}-Lactamase. *J. Clin. Microbiol.*, 39:1865-1870.
- Lynch, J. P. III. 2001. Hospital-Acquired Pneumonia: Risk Factors, Microbiology, and Treatment. *Chest*, 119: 373S-384S.
- Mertaniasih, N.M. 2001. Pola Mikroba Pada Sepsis, (hlm.19), Surabaya : Laboratorium Mikrobiologi Klinik RSUD. Dr. Soetomo (FK UNAIR).

- Muller-premru M., Gubina M. 2000. Serotype, Antimicrobial Susceptibility and Clone Distribution of *Pseudomonas aeruginosa* in a University Hospital. *Zentralbl Bakteriol*, 8:289, 857-67.
- Panzig, B., G. Schröder, F.-A. Pitten, and M. Gründling. 1999. A large outbreak of multiresistant *Pseudomonas aeruginosa* strains in north-eastern Germany. *J. Antimicrob. Chemother.*, 43:415-418.
- Pellegrino, F.L.P.C., L.M. Teixeira, M.d.G.S. Carvalho, S. Aranha Nouer, M. Pinto de Oliveira, J. L. Mello Sampaio, A. D'Avila Freitas, A. L. P. Ferreira, E.d.L.T. Amorim, L.W. Riley, B.M. Moreira. 2002. Occurrence of a Multidrug-Resistant *Pseudomonas aeruginosa* Clone in Different Hospitals in Rio de Janeiro, Brazil. *J. Clin. Microbiol.*, 40: 2420-2424.
- Shulman, S.T. 1994. *Dasar Biologis dan Klinis Penyakit Infeksi*, edisi ke-4, (hlm. 174-524). Yogyakarta: Gadjah Mada University Press.
- Soewandjo, E. 2001. Therapeutic Options in Conforting Hospital Aquired Infections, Dalam Symposium Current Issues and Chalenges in the Management of Hospital Infections and Immunocompromised Patiens, 15 September 2001 (hlm. 1-11), Surabaya.
- Tassios, P. T., V. Gennimata, A. N. Maniatis, C. Fock, N. J. Legakis, and The Greek *Pseudomonas aeruginosa* Study Group. 1998. Emergence of multidrug resistance in ubiquitous and dominant *Pseudomonas aeruginosa* serogroup O:11. *J. Clin. Microbiol.*, 36:897-901.
- Todar, K. 2002. *Pseudomonas aeruginosa*. tersedia di URL: <http://www.bact.wisc.edu/Bact330/lecturepseudomonas>, tahun akses 2003.
- Victoria. 2002. Pola Kuman Dari Data Kultur Darah dan Kepekaannya Terhadap Berbagai Antimikroba di Laboratorium Mikrobiologi RSK St. Vincentius A Paulo Surabaya pada tahun 1997-2001, Skripsi. Surabaya: Fakultas Farmasi Universitas Surabaya.
- Vincent, J.L., D.J., Bihari, P.M. Suter, H.A. Bruining, J. White, M.H. Nicolas-Chanoin, M. Wolff, R.C. Spencer and M. Hemmer. 1995. The prevalence of nosocomial infection in intensive care units in Europe: Results of the European Prevalence of Infection in Intensive Care (EPIC) Study. *The Journal of the American Medical Association*, 274: