

Pendahuluan: Peningkatan prevalensi bakteri *K. pneumoniae* penghasil enzim ESBL terjadi secara global. *K. pneumoniae* penghasil ESBL mempunyai pola kepekaan bervariasi di berbagai negara. Oleh karena itu diperlukan investigasi *K. pneumoniae* penghasil ESBL beserta pola kepekaannya.

Tujuan: mengetahui proporsi *K. pneumoniae* isolat klinik penghasil ESBL serta melihat pola kepekaannya terhadap antibiotika

Metode: *K. pneumoniae* diisolasi dari spesimen klinik penderita yang berobat di RSUP dr. Soeradji Tirtonegoro Klaten. Identifikasi *K. pneumoniae* dilakukan dengan pemeriksaan morfologi koloni, pemeriksaan mikroskopik, dan uji biokimia menggunakan *Microbact*TM GNB 24E (Oxoid, UK). Uji kepekaan antibiotika dan skrining ESBL menggunakan disk *ceftazidime*, *cefotaxime*, dan *ceftriaxone* (Oxoid, UK) dengan metode disk difusi berdasarkan CLSI M100-28. Hasil skrining positif akan dikonfirmasi dengan *Modified Double Disk Synergy* (MDDST) menggunakan disk *amoxicillin-clavulanate*, *ceftazidime*, *cefotaxime*, dan *cefepime* (Oxoid, UK).

Hasil: Selama Juni 2017-Mei 2018 dapat diidentifikasi 168 (17,46%) isolat *K. pneumoniae* dari 962 total isolat klinik bakteri. *K. pneumoniae* paling banyak didapatkan dari ruang perawatan intensif (29,17%) dan paling sering diisolasi dari sputum (45,24%). Sebagian besar isolat *K. pneumoniae* telah resisten terhadap antibiotika. Sensitivitas *K. pneumoniae* lebih dari 80% dari spesimen saluran pernafasan didapatkan terhadap *amikacin*, *meropenem*, *piperacillin-tazobactam*, dan *levofloxacin*. Demikian juga *gentamicin*, *meropenem*, *piperacillin-tazobactam*, dan *amikacin* merupakan antibiotika dengan sensitivitas lebih dari 80% dari spesimen luka. Sebanyak 52,98% (89/168) isolat *K. pneumoniae* merupakan penghasil ESBL, yang paling banyak didapatkan dari ruang perawatan intensif (41,57%), dan spesimen tersering berasal dari sputum (40,45%). *K. pneumoniae* penghasil ESBL juga resisten terhadap banyak antibiotika. *K. pneumoniae* penghasil ESBL yang diisolasi dari saluran pernafasan mempunyai sensitivitas lebih dari 80% terhadap *amikacin*, *piperacillin-tazobactam*, dan *meropenem*.

Kesimpulan: *K. pneumoniae* penghasil ESBL sebesar 52,98% dari keseluruhan isolat *K. pneumoniae*. *K. pneumoniae* penghasil ESBL pada saluran pernafasan mempunyai sensitivitas lebih dari 80% terhadap *piperacillin-tazobactam*, *amikacin*, dan *meropenem*.

Kata kunci: *K. pneumoniae*, ESBL, MDDST, RSUP dr Soeradji Tirtonegoro, Klaten

ABSTRACT

Background: Globally, the prevalence of *K. pneumoniae* producing ESBL has been increasing steadily. The susceptibility patterns of ESBL-producing *K. pneumoniae* varies considerably among countries. Therefore, the investigation of ESBL-producing *K. pneumoniae* clinical isolates and their susceptibility are warranted.

Objective: To determine the proportion of ESBL producing *K. pneumoniae* and its susceptibility pattern to antibiotics.

Methods: *K. pneumoniae* was isolated from clinical specimens at dr. Soeradji Tirtonegoro Hospital Klaten. Identification of *K. pneumoniae* was performed by analyzing colony morphology, microscopic examination, and biochemical testing using Microbact™ GNB 24E (Oxoid, UK). Both antibiotic susceptibility testing and ESBL screening (using ceftazidime, cefotaxime, and ceftriaxone discs, Oxoid, UK) were conducted using disc diffusion method in concordance with CLSI M100 28th Edition. The positive results were confirmed with Modified Double Disk Synergy (MDDST) using amoxicillin-clavulanate, ceftazidime, cefotaxime, and cefepime discs (Oxoid, UK).

Results: From June 2017 to May 2018, 168 (17.46%) isolates were identified as *K. pneumoniae* from 962 clinical bacterial isolates. *K. pneumoniae* were mainly from intensive care unit (29.17%) and of sputum origin (45,24%). Most *K. pneumoniae* isolates were resistant to antibiotics. Sensitivity *K. pneumoniae* to antibiotic of more than 80% from respiratory specimen was found against amikacin, meropenem, piperacillin-tazobactam, and levofloxacin. Likewise *K. pneumoniae* isolates from wound specimen have a sensitivity more than 80% against gentamicin, meropenem, piperacillin-tazobactam, and amikacin. ESBL producers comprised of 52.98% total ESBL producers isolates. ESBL-producing *K. pneumoniae* were majority from intensive care unit (41.57%) and isolated from sputum (40.45%). ESBL *K. pneumoniae* were also resistant to many antibiotics. The sensitivity of ESBL *K. pneumoniae* isolated from respiratory tract against piperacillin-tazobactam, amikacin, and meropenem was more than 80%.

Conclusion: Among all *K. pneumoniae* isolates, ESBL *K. pneumoniae* was 52.98%. ESBL *K. pneumoniae* from respiratory tract specimens had a sensitivity of more than 80% against piperacillin-tazobactam, amikacin, and meropenem.

Keywords: *K. pneumoniae*, ESBL, MDDST, dr Soeradji Tirtonegoro Hospital, Klaten