Validation Study of the Drug Resistance in Pneumonia (DRIP) Score in Predicting the Risk of Drug-Resistant Pathogens Among Patients with Pneumonia: A Single Center Cross-Sectional Study

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RATIONALE Drug resistance in pneumonia (DRIP) score, among other prediction models, performed significantly better in detecting the risk of pneumonia due to drug-resistant pathogens (DRP). The use of this clinical prediction score may have the potential to decrease the use of unwarranted extended spectrum antibiotics in patients with low risk of pneumonia due to DRP. Furthermore, it can likewise select patients who will benefit from broad-spectrum antibiotics as initial therapy for patients with high risk of community acquired pneumonia due to DRP (CAP-DRP). This study was initiated to validate its efficiency in the local setting.

METHODS This is a single center cross-sectional study. Adult Filipino patients aged 18 years and above who were clinically diagnosed with CAP were included. DRIP score was performed within 48 hours of admission to patients admitted for CAP. A score of <4 was classified as low risk and a score of ≥4 was classified as high risk. Confirmation of the presence of DRP was done through review of microbiologic cultures.

RESULTS A total of 195 patients were included. DRIP score identified patients at high or low risk of pneumonia due to DRP with a sensitivity of 62.1% (95% CI, 48.4 to 74.5), a specificity of 81% (95% CI, 73.4 to 87.2), a positive predictive value of 58.1% (95% CI, 44.8 to 70.5), and a negative predictive value of 83.5% (95% CI, 76, 89.4). The prevalence of pneumonia due to DRP was 29.7%. Pseudomonas aeruginosa was identified in 15 (7.14%) of patients and was the most common isolated DRP. Tube feeding (OR 5.24), prior infection with DRP (OR 4.47), and hospitalization within previous 60 days (OR 2.52) were identified to be the strongest risk factors associated with pneumonia due to DRP. A modified DRIP score (mDRIP) was derived by eliminating one of the major risk factors, which is residence in a long-term care facility. mDRIP has a sensitivity of 62.07%, specificity of 82.02%, positive likelihood ratio of 3.27 and negative likelihood ratio of 0.47.

CONCLUSION This prospective study validated the performance of DRIP score in predicting pneumonia due to DRP. DRIP Score, as well as the modified DRIP score (mDRIP), are valuable prediction models that can be used in the local setting to possibly lessen unnecessary use and therefore preserve the utilization of broad-spectrum antibiotics among low risk patients. Future studies are necessary to establish definitive benefit on patient outcome measures.

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