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Background. Mortality in patients with community-acquired pneumonia (CAP) rises dramatically with increasing age. The pneumonia severity index (PSI) and CURB-65 scale have shown lower prognostic value for death in the elderly. We sought to assess the predictive power of procalcitonin (PCT) and other biomarkers in blood to derive a severity prediction rule.

Methods. From January 2010-March 2016, we conducted a hospital-based, cohort study of radiologically confirmed CAP patients ≥50 years old (n = 867). Upon admittance, demographic, clinical data, PSI and CURB-65 scores, as well as results from blood tests were collected. Starting November 2014, blood was systematically collected to measure procalcitonin (PCT) (n = 158 patients). Outcomes were ICU admission and 30-day mortality. Statistical analysis included principal component analysis (PCA), regression models, ROC and area-under-curve (AUC) tests.

Results. Mean age was 72 years; range 50–106. During the 30-day period there were 122 (17%) deaths and 319 (37%) admissions to the ICU. For PSI ≥IV and CURB-65 class ≥III, the respective diagnostic odds ratios (95% CI) for 30-day mortality were 3.3 (2.1, 5.1) and 2.9 (1.9, 4.4) and for ICU admission 2.2 (1.6, 2.9) and 2.0 (1.5, 2.7). In ROC analysis for mortality prediction AUC for PSI class ≥IV and CURB-65 class ≥IV were 0.65 and 0.60, respectively; for ICU admission AUC of 0.61 and 0.61. PCT ≥2 had low predictive value for death (AUC 0.60) and ICU admission (AUC 0.65) and combination of PCT to each score did not improve their prediction ability. According to PCA and regression models, odds ratios (95% CI) for death were: age ≥70 years [2.9 (1.5, 6.5)], hypotension (systolic <90 mm Hg) [2.3 (1.1, 5.2)], lactate ≥1.5 [3.4 (1.0, 11.2)], red blood cell distribution width ≥143.5 (2.1 [1.5, 5.5]), bicarbonate <3.2 [1.7, 6.0], lactate ≥1.6 [2.8 (1.5, 5.3)] and glucose <80 [4.2 (1.4, 12.2)] with an AUC 0.77. Cardiac rate >100, body mass index ≥30, lactate ≥1.6 and urea >71 were good predictors for ICU admission (AUC 0.80).

Conclusion. PSI, CURB-65 and procalcitonin have low predictive values for death and ICU admission in elderly patients with CAP. This study shows that frequently tested biomarkers are promising candidate predictors for severe CAP in elderly patients.

Disclosures. All authors: No reported disclosures.

2008. Characteristics of Pleural Effusion and Role of Computed Tomography (CT) Attenuation Values (Hounsfield units) in Differentiating Pleural Fluid transudate, exudate and empyema. Shaili Nepal, MD; 1Abesh Niswala, MD; 2Mary Naglak, PhD; 3and Manual Rosenberg, MD

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Background. Pleural effusion is the collection of fluid in the pleural space when the production of pleural fluid is in excess of absorption. Analysis of pleural fluid by thoracentesis (a guidance helps determine the cause) pleural effusions. Light’s criterion is a traditional method of differentiating transudates and exudates. There has been limited studies with no clear consensus on role of measuring Hounsfield (HU) values in differentiating transudate, exudate or empyema. The purpose of this study was to evaluate the efficacy of CT scans in differentiating pleural effusions as exudate or transudate using attenuation values in HU.

Methods. This retrospective study was performed on 100 patients with pleu- ral effusions admitted to Abington Hospital-Jefferson Health between January 2014 and December 2016. Patients who had a chest CT followed by diagnostic thoracence- tesis (≥48 hours of incision) were included. Pleural fluids were classified as exudates or transudates on the basis of Light’s criteria using laboratory biochemical markers. CT attenuation value (CTA) in Hounsfield Unit (HU) was taken using a region of interest on the CT chest with the greatest quantity of fluid. Each CT scan was also reviewed for the presence of additional pleural features.

Results. 21 of the 100 pleural effusions were transudates and 79 were exudates. The mean attenuation of the exudates (31.9 ± 15.2 HU; 95% CI, 28.4–35.2 HU) was significantly higher than the mean attenuation of the transudates (24.8 ± 9.9 HU; 95% CI, 20.3–28.4 HU; P = 0.047). When a cutoff value of ±24.50 for exudative effusion was set, sensitivity and specificity were 65.0% and 47.6%, respectively. All cases of pleural leakages (14%); irregularity (2%); and thickening (2%) were associated with exudates.

Conclusion. CT attenuation values may be used clinically to characterize pleural fluid. Exudates had significantly higher Hounsfield units in CT Scan. Additional CT features, such as pleural leakage, thickening, and irregularities were predominantly associated with exudates. Accurate characterization of empyema with CT chest with HU may guide to early intervention. Standardization of reporting HU in CT chest for pleural effusion is important. Further studies with larger sample size are needed for accuracy.

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2009. Impact of a Negative Procalcitonin Level on Antibiotic Usage and 30 Day Readmission Rates in a Community-Based Teaching Hospital John Boreyko, PharmD, BCPS; 1Gale Linens, BS MLS-ASCP and Sharon Mariano, BS, MT(ASCP), Pharmacy, Duke Regional Hospital, Durham, North Carolina, 2Infectious Disease, Laboratory, Duke Regional Hospital, Durham, North Carolina

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Background. Patients presenting to the hospital with acute shortness of breath and/or increased sputum production often receive antibiotics despite a viral or environmental etiology as the primary trigger. This study will examine the role of procalcitonin in reducing antibiotic initiation and subsequent 30-day readmission rates for some cause diagnosis.

Methods. The authors performed a retrospective study of patients testing negative for procalcitonin (< 0.24 micrograms/L) over a four month period in a community-based, academic teaching hospital. We examined both the percentage of patients who received antibiotics as well as the 30-day readmission rates. We compared our study cohort with a comparable cohort prior to the implementation of a procalcitonin guided protocol.

Results. Our study identified 470 patients from 13 January 2016 through 13 May 2016. The majority of all procalcitonin tests (76%) were in the category of antibiotics discouraged or strongly discouraged. When normalized for antibiotics that were discontinued after only one dose or never initiated and the use of azithromycin as an anti-inflammatory agent, 53% of patients received antibiotics. Analyzing for 30-day readmission rates delayed in making the correct alternative diagnosis, just two (0.4%) patients met inclusion criteria. Compared with a non-procalcitonin guided protocol examining 574 patients (87%) received antibiotics and the 30-day readmission rate or Emergency Department presentation was 5.2%. This represents a 34% decline in initiating or continuing antibiotic therapy and a 48% reduction in 30-day same cause readmissions.

Conclusion. The use of a procalcitonin guided protocol reduced antibiotic usage by 34% with a statistically significant reduction in 30-day readmission rates.

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2010. Poor Quality Non-Bronchoscopic Bronchoalveolar Lavage Specimens Lead to Inappropriate Diagnosis and Treatment of Ventilator-Associated Pneumonia Nathaniel DeFeice, MD; 1Vivian Tran, MD; 2Jennifer Brown, MD; 3Division of Infectious Diseases, University of California, Davis Medical Center, Sacramento, California, 4Department of Internal Medicine, University of California, Davis Medical Center, Sacramento, California, 5Department of Pathology and Laboratory Medicine, University of California, Davis Medical Center, Sacramento, California

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Background. Ventilator-associated pneumonia (VAP) is a significant complication in mechanically-ventilated patients. No clear diagnostic standard exists for VAP, but positive cultures from bronchoalveolar lavage (BAL), non-bronchoscopic BAL (NB-BAL) or endotracheal aspirate (ETA) specimens are typically used to aid in diagnosis. NB-BAL and BAL specimens, unlike ETA specimens, are not routinely subjected to quality assessment prior to culture. The goal of this study was to evaluate the impact of NB-BAL quality on VAP diagnosis and antimicrobial treatment.

Methods. Quality assessments were performed on NB-BAL specimens obtained from adult patients hospitalized at our institution from May 2016 to January 2017. Our study aimed to identify diagnostic delays. The implementation of quality assessments for NB-BAL specimens may reduce the misdiagnosis of VAP and inappropriate antimicrobial use.

Results. Upon examining 574 patients (87%) received antibiotics and the 30-day readmission rate or Emergency Department presentation was 5.2%. This represents a 34% decline in initiating or continuing antibiotic therapy and a 48% reduction in 30-day same cause readmissions.

Conclusion. The results of NB-BAL quality on VAP diagnosis and antimicrobial treatment.

Disclosures. All authors: No reported disclosures.

2011. Smoking and Opportunistic Infections Contribute to High Rates of Respiratory Symptoms Among HIV-Infected Smokers Matthia Haslans, MD, MPH; 1Ageline Sahagun, Bachelor of Science; 2James Ageline MD, 3and Rachel Presti, MD, PhD; 4Division of Infectious Diseases,
2012. Lysis Centrifugation Method for the Direct Identification of Positive Blood Cultures Using MALDI-TOF MS
Hilal Al Sidan, MD; Khalila BinKhamis, MBBS, FRCP(C); Jolene Head, MLTC; and Rose Danellio, PhD, FCCM, D(ABMM)1,2; Dalho University Hospital, Halifax, NS, Canada; 'Nova Scotia Health Authority, Halifax, NS, Canada
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Background. Matrix-assisted laser desorption ionization time-of-flight mass spectrometry (MALDI-TOF MS) bacterial identification has revolutionized clinical microbiology. Typically, bacteria must be first cultured prior to identification; however, several techniques have emerged that allow the identification of bacteria directly from positive blood cultures. This study assessed the MALDI-TOF MS identification rate of positive blood cultures with those having at least 4-6 hours of sufficient growth.
Methods. Only blood cultures flagged overnight as positive by the BD Phoenix system were included for study. A one ml aliquot was drawn and immediately processed using a lysis centrifugation technique and analyzed using MALDI-TOF (bioMérieux). Positive blood culture samples were also sub-cultured onto agar plates as per standard laboratory practice, incubated for 4-6 hours and if sufficient growth was present, processed using MALDI-TOF. Cultures with insufficient growth were incubated overnight. Direct identifications were compared with those having sufficient growth.
Results. Between June 2015 to February 2016, 300 positive blood cultures were included in study. Of these, there were 156 Gram-positive cocci, 112 Gram-negative bacilli, 15 anaerobic organisms, 11 Gram-positive bacilli, and 6 yeast. Using a confidence threshold of 99.9%, 69% of all organisms were correctly identified using the direct identification method. The identification of any organism with a confidence threshold <99.9% was not accepted. Approximately 81% of Gram-negative bacilli were correctly identified compared with 64% of Gram-positive cocci 36% of Gram-positive bacilli.
Conclusion. The lysis-centrifugation direct identification method is a relatively inexpensive ($1.00) and rapid technique that will allow clinicians to receive the identification of organisms from approximately 70% of bacteremic patients 6 to 24 hours earlier than waiting for sufficient growth. This should allow clinicians to make better informed empiric antimicrobial choices to manage their patients.
Disclosures. All authors: No reported disclosures.