Comparision between febrile neutropenic episodes with abnormal CT findings (n=48) with and without a change in management.

| Variables                  | Change in management (n=65) | No change in management (n=39) | P value |
|----------------------------|----------------------------|-------------------------------|---------|
| Median Age; years (IQR)    | 50 (20 to 67)              | 59 (45 to 68)                 | 0.25    |
| Disease status, Complete remission: n (%) | 1 (11%)                    | 5 (13%)                       | 1.00    |
| No symptoms related to sinuses: n (%) | 0                          | 21 (53%)                      | 0.003   |
| Mucosal thickening: n (%)   | 8 (88%)                    | 39 (100%)                     | 0.18    |
| Air fluid levels: n (%)    | 6 (66%)                    | 2 (6%)                        | 0.0013  |
| Partial opacification: n (%)| 3 (33%)                    | 3 (7%)                        | 0.07    |
| Complete opacification: n (%)| 2 (22%)                    | 0                            |         |
| Bone invasion: n (%)       | 2 (22%)                    | 0                             | 0.03    |

Conclusion: Mucosal thickening is a frequent and non-specific imaging finding, particularly in patients without sinus symptoms. Sinus CT findings in patients with febrile neutropenia without sinus symptoms had no impact on clinical management. Consequently, sinus CT may be reserved for patients presenting with sinus symptoms.

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93. A Diagnostic Stewardship Intervention to Improve Utilization of 1,3-β-D-glucan Testing
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Session: P-4. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background: 1,3-β-D-glucan (BDG) is a cell wall component of fungi such as Aspergillus spp., Candida spp., and Pneumocystis jiroveci. BDG assay is used as a screening test to aid early diagnosis of invasive fungal infections (IFI) that are associated with significant morbidity and mortality in immunocompromised patients. The diagnostic performance varies depending on IFI risks among study populations, thus it is important to appropriately select patients with risk factors for IFI to optimize utilization of the BDG test.

Methods: An intervention to improve BDG test utilization was initiated at Truman Medical Center on November 28, 2018. The BDG test order was replaced by a BDG test request. The request was sent to the inbox of an on-call pathology team. Patient information was reviewed and the on-call pathology team called the ordering physician to discuss the case based on the approval algorithm chart. The criteria for BDG test approval were 1) immunocompromised or ICU patient, and 2) on empiric antifungal therapy, or inability to perform specific diagnostic tests such as bronchoscopy. If approved, a BDG test request was immediately processed. Retrospective chart review was conducted for 1 year pre- and post-intervention to obtain demographic, clinical, and laboratory data for 4 patient groups. Group 1 included patients who had BDG tests during pre-intervention period. Group 2 was composed of all patients who had BDG test requests during post-intervention period. Group 2a and 2b were the post-intervention patients with approved and rejected BDG test requests, respectively.

Results: The number of BDG tests performed per year decreased from 156 pre-intervention to 24 post-intervention. The number of test requests was 65 and 41 of them were rejected which led to $7,380 direct cost savings. There was no significant difference in age or the proportion of immunocompromised and ICU patients between Group 1 and 2. The test positivity rate was significantly higher in Group 2-a compared to Group 1 (45.8 % vs. 25.3%, p=0.038). There was no delay in IFI diagnosis or IFI-related mortality in patients for whom BDG test requests were rejected.

Conclusion: We successfully and safely implemented a diagnostic stewardship intervention for BDG testing and improved test utilization.

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94. Appropriate Urine Legionella Antigen Testing: A Step Towards Diagnostic Stewardship
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Session: P-4. Antimicrobial Stewardship: Diagnostics/Diagnostic Stewardship

Background: Pneumonia is a leading cause of sepsis and hospitalization. Infectious Diseases Society of America and American Thoracic Society (IDSA/ATS) published 2019 practice guidelines for community-acquired pneumonia (CAP), recommending urinary antigen testing (UAT) for Legionella pneumophila (LP) only in patients with severe pneumonia or having epidemiological risk factors. In the last 20 years, there has been no Legionella outbreak in Nebraska. Currently, the urine antigen test is considered based on the discretion of the ordering provider. However, this usually results in over-utilization of the test and associated financial burden.

Methods: Retrospective chart review of patients admitted to Bergan Mercy Medical Center, Creighton University, Omaha with the admission diagnosis of community-acquired pneumonia in the year 2019, by using electronic medical records. The charts were reviewed for baseline characteristics, admission diagnoses, and clinical outcomes. The project was submitted to and reviewed by the institutional review board.

Results: From January to December 2019, 4738 patients were admitted to the general medical floors with the diagnosis of community-acquired pneumonia. Among those patients, 826 patients (17.43%) had urine Legionella antigen tests done, only 11 (0.23%) were tested positive. Moreover, 140 patients (2.95%) had urine Legionella antigen tests in the absence of a documented diagnosis of community-acquired pneumonia. Patients admitted to intensive care units were not included in the study as guidelines do not restrict from ordering urine Legionella tests in patients with severe sepsis secondary to community-acquired pneumonia.

Conclusion: A diagnostic stewardship approach should be considered for urine Legionella antigen testing. Moreover, such a retrospective review provides an opportunity for quality improvement initiatives at the academic medical facilities with lower Legionella outbreaks.

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