Oral Defense Announcement
University of Missouri – St. Louis Graduate School

An oral examination in defense of the dissertation for the degree
Doctor of Nursing Practice with an emphasis as a Family Nurse Practitioner

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Initiation of Procalcitonin Screening as a Marker in Antibiotic Therapy De-escalation

Date: July 7, 2022
Time: 9:30 a.m. to 10:30 a.m.
Place: 219B SCCB

Abstract

Problem: The overuse of antibiotics has created antimicrobial resistance (AMR) resulting in treatment failure for bacterial infections. To combat AMR, clinicians should only prescribe antibiotic therapy when clinically warranted. It is easy to misdiagnose a viral infection. However, any delay in the initiation of antibiotic therapy in a bacterial infection may lead to increased morbidity and mortality. These patients with non-specific clinical symptoms may be misdiagnosed without a rapid and definitive diagnostic test.

Methods: This quality improvement (QI) initiative utilized an evidence-based clinical guideline for procalcitonin (PCT) levels for antibiotic therapy de-escalation. WBC counts were collected two-days and one-day before ID work-up along with PCT levels and white blood cell (WBC) counts collected on day-1, day-3, and day-5 post infectious disease. Data was collected via prospective chart review including the number of positive PCT levels obtained versus positive cultures, average length of antibiotic use, number of different antibiotics used, and the time until the bacterial infection was confirmed or denied.

Results: The implemented PCT clinical guideline allowed for faster identification of bacterial infections than standard blood cultures. There is significant evidence supporting a positive relationship between elevated PCT levels and positive cultures. Over time the level of PCT decreases showing a correlation with a reduction of the WBC count.

Implications for Practice: Use of the PCT clinical guideline can identify whether there is a bacterial infection rapidly allowing for the initiation or de-escalation of antibiotic therapy preventing further AMR resistance.

Defense of Dissertation Committee
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