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Abigail Heilenman

Amy Slenker MD

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ESR and CRP Testing May not Be Useful for Monitoring Patients with Native Vertebral Osteomyelitis

Abigail Heilenman, Amy Slenker MD

Introduction

- Native vertebral osteomyelitis (NVO) is a dangerous illness that can cause permanent spinal cord injury or septicemia
- Often caused by a single bacterial pathogen and treated with antibiotics
- Patients present with back pain and fever
- Treatment monitored by ESR and CRP which are both systemic inflammatory markers

Methods and Objectives

Retrospective chart review of all patients from 8/1/2015 to 12/31/2019 that fit inclusion criteria for the study

Inclusion criteria: admitted to LVH-CC or LVH-M, diagnosed with NVO, ESR and CRP testing performed concurrently, discharged on antimicrobial therapy

Collect patient data into REDCAP database (n=53)

Determine if there is utility in conducting inflammatory tests

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Results

Average Age	66
Gender	Male 37 (69.8) Female 16 (30.2)
Race	White or Caucasian 46 (86.6) Black or African American 1 (1.9) Asian 0 (0) Multi-racial 0 (0) Other 1 (1.9) Patient declined or refused 1 (1.9) Unknown 1 (1.9) Missing or Unavailable 3 (5.7)
Types of Osteomyelitis *	Lumbar spine 34 (64.2) Thoracic spine 17 (32.1) Cervical spine 11 (20.8) Sacral or Iliac spine 5 (9.4) Coccyx 0 (0)
Number of Tests Performed	CRP 171 (48) ESR 184 (52)

*% will not equal 100% as patients can have multiple levels involved

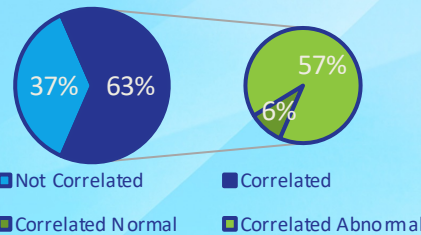


Figure 1: Results for Concurrent Testing

~Combined Endpoint of Treatment Failure was defined as treatment failure, 90-day attributable readmission, or 90-day attributable mortality

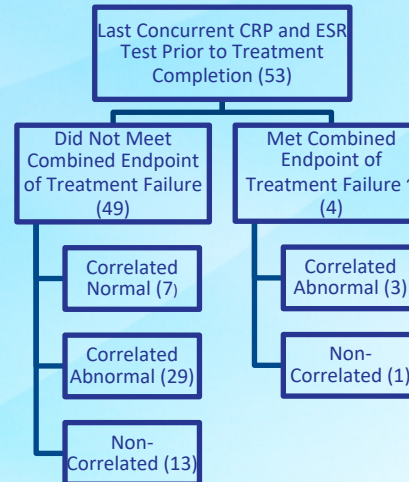


Figure 2: Last Marker Testing Completed for Patient

Discussion

- 355 total inflammatory marker tests were performed of which ESR and CRP were correlated only 63% of the time
- 4 patients met the combined endpoint of treatment failure; 3 of the 4 had correlated abnormal ESR and CRP results and 1 of 4 had non-correlated results prior to completion of antibiotics
- Of the 49 patients who did not meet the combined endpoint of treatment failure, 29 had correlated abnormal results prior to completion of antibiotics

Conclusion

- ESR and CRP testing may not be useful for monitoring NVO; patients who had treatment failure and treatment success had abnormal monitoring tests just prior to completion of therapy
- More data is needed as well as a robust statistical analysis

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