Early reduction in C-reactive protein following treatment for spinal epidural abscess: a potential treatment guide

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INTRODUCTION:

Spinal epidural abscess (SEA) is a rare but potentially debilitating diagnosis with the potential for severe neurologic sequelae. A recent trend toward non-operative management with intravenous antibiotics has not demonstrated equivalent outcomes with regard to mortality and morbidity and remains controversial. The prognostic value of CRP in cases of SEA has yet to be fully investigated in the literature. This study aims to determine the influence early CRP trends on outcome in patients with SEA with respect to morbidity and mortality.

METHODS:

All patients treated for spontaneous SEA in a tertiary centre in New Zealand over a 10-year period were followed for at least 2 years. CRP at diagnosis and day 4-5 following treatment initiation was analyzed to determine predictors of CRP reduction of at least 50%. Proportional Cox hazards regression investigated mortality over 2 years.

RESULTS:

94 patients met inclusion criteria and with CRP values available for analysis. Median age was 62 years (+/- 17.7) and 59 (63%) were treated operatively. Kaplan-Meier analysis estimate of 2-year survival was 0.81 (95% CI 0.72-0.88). CRP reduction by 50% was seen in 34 patients. Patients who did not experience a 50% reduction were more likely to have thoracic infection (27 vs. 8, p=0.02) or multifocal sepsis (41 vs. 13, p=0.002). Failure to achieve a 50% reduction by day 4-5 was associated with worse post-treatment Karnofsky scores (70 vs. 90, p=0.03) and longer hospital stay (25 days vs. 17.5 days, p=0.04). Cox regression model showed mortality predicted by Charlson Comorbidity Index, thoracic location of infection, pre-treatment Karnofsky score, and failure to achieve a 50% CRP reduction by day 4-5.

DISCUSSION AND CONCLUSION:

Patients who fail to reduce CRP values by 50% at day 4-5 following treatment initiation are more likely to experience prolonged hospital stay, have poorer functional outcome and have greater mortality risk at 2 years. This group has severe illness regardless of treatment type. Failure to achieve a biochemical response to treatment should prompt reassessment.

Figure 1: Early Trends in Median C-Reactive Protein

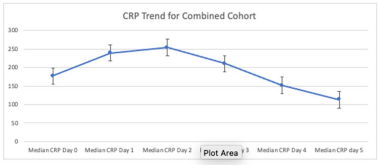
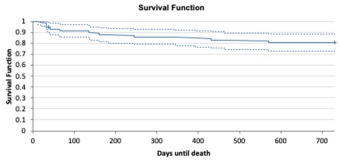


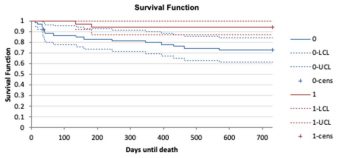
Figure 2: Kaplan-Meier Survival Estimate over 2 -Year Follow-Up



Mean Survival Time

	Mean	Std Dev	LCL (95%)	UCL (95%)
Days until death	623.57912	23.20098	578.10604	669.05221

Figure 4: Kaplan- Meier Survival Analysis with and without CRP Resolution



Legend:
Red line "1" = those with 50% CRP resolution at day 4/5
Blue line "0" = those without 50% CRP resolution at day 4/5