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ePoster Session

Diagnosis of bone and joint infections

Diagnosing pyogenic spondylodiscitis - a prospective observational study

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Background: Recent Infectious Diseases Society of America guidelines on spondylodiscitis highlight the scarcity of existing evidence. We address the major lack of prospectively collected data.

Methods: We performed a prospective service evaluation of patients with suspected pyogenic spondylodiscitis referred to a tertiary UK infectious diseases service from August 2013 to August 2015. Consecutive patients were entered into a prospectively maintained database. A data collection proforma was supplemented by electronic clinical, laboratory and imaging databases.

Results: 70 patients (45M, 25F, mean age 62 [range 34-84]) were identified over a period of 24 months. Mean duration of symptoms prior to diagnosis was 38 days (range 1-239). The majority reported spinal pain (90%) and/or fever (55%). Neurological features were identified in 72% of patients, most commonly radiculopathy (57%), para/quadruplegia (10%) and cauda equina syndrome (7%). All had neuroradiological features of spondylodiscitis (MRI 97%, CT 3%). The lumbar spine was most commonly involved (44%), with multilevel (>1 disc-space) involvement in 29%. CRP was elevated in 98% of cases (mean 147, CI: 115-178); white cell count was elevated in 55% (mean 12.4, CI: 10.6-14.2). Microbiological diagnosis was achieved in 67% of patients. Blood cultures were performed in 88% and deep spinal samples in 72% (image-guided [46%], surgical [54%]). Overall 54% of blood cultures and 56% of deep spinal samples yielded a causative organism. *Staphylococcus aureus* was the most commonly identified organism in blood or deep cultures (45% and 62% respectively). The majority of patients had both blood and spinal cultures (61%). Spinal sampling was not performed due to positive blood (23%) or other sterile site culture (5%), whilst 11% had spinal cultures only. Spinal cultures identified an organism in 57% of patients with sterile blood cultures, and 54% of patients with positive blood cultures (with 90% concordance of organism identified). Prior antibiotics had a significant negative impact on blood culture positivity (78% versus 15%, $P < 0.001$ Fisher's test) and a trend towards reducing spinal culture positivity (64% versus 36%, $P = 0.171$). Molecular diagnosis by 16sRNA PCR identified an organism in 33% of sterile biopsy specimens. Mean duration of antibiotic treatment was 104 days (CI: 88-120), administered intravenously for mean 59 days (CI: 47-70). 48% of patients required surgical intervention. Mean length of inpatient stay was 45 days (CI: 36-53). Neurological progression on treatment occurred in 33% of patients. Data collection for outcome assessment is ongoing.

Conclusions: Spondylodiscitis is associated with significant morbidity and healthcare burden and should be actively excluded in patients with fever and neurological features. Blood cultures must be performed prior to antibiotic administration, and spinal biopsy for microbiological diagnosis remains of critical importance in patients with sterile blood cultures. Molecular methods may play an increasing role in diagnosis of culture-negative cases.