Wrist inflammation: A retrospective comparison between septic arthritis and non-septic arthritis

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INTRODUCTION

Inflammation of the wrist joint may be attributed to a multitude of underlying causes. Among them, septic arthritis is the most debilitating, and necessitates early diagnosis and surgical intervention. Clinically, a large overlap exists between wrist septic arthritis and other non-septic pathology, making an accurate diagnosis difficult.

PURPOSE

This study seeks to identify differences in demographics, clinical and laboratory data between septic arthritis and other non-septic wrist arthritides in patients admitted for wrist inflammation, that may aid in early accurate diagnosis.

METHODS

A retrospective review of the computerised records of inpatients managed by the Hand Surgery service of a tertiary hospital in Singapore was conducted. Patients admitted for wrist inflammation from May 2012 – April 2015 were recruited. They were divided into septic arthritis or non-septic arthritis groups based on diagnosis. The diagnosis of septic arthritis was made by positive wrist fluid cultures or intra-operative findings of pus in the wrist joint. Data was collected on a standardised data extraction form, and analysed.

RESULTS

- 77 patients were included in this study.
- Non-septic arthritis (80.5%) was more common than septic arthritis (19.5%).
- Patients with non-septic arthritis were more likely to have chronic kidney disease (CKD), pre-existing gout, or both.
- No patients with concurrent gout and CKD had septic arthritis, whereas 25.8% of non-septic arthritis patients had concurrent gout and CKD (χ²=4.89, p<0.05).
- All patients with raised serum uric acid had non-septic arthritis (χ²=7.94, p<0.01).
- All patients with septic arthritis had normal serum uric acid level, and 2 or more raised inflammatory markers (white cell count, C-reactive protein (CRP), or erythrocyte sedimentation rate (ESR)), compared to 50% in patients with non-septic arthritis (χ²=12.55, p<0.01).
- In patients admitted for isolated wrist inflammation and no other concurrent acute medical problems (N=30), the mean CRP (218 mg/L, range: 18.7 to 347mg/L) in the septic arthritis patients was significantly higher than the non-septic arthritis group (mean 85.6 mg/L, range 1.6 to 365) (mean difference 132 mg/L, 95% CI 30.9 – 234).

CONCLUSION

In patients presenting with wrist joint inflammation, those with 2 or more raised inflammatory markers (white cell count, C-reactive protein, erythrocyte sedimentation rate) were more likely to have septic arthritis. Those with chronic kidney disease, gout, or both, were more likely to have non-septic arthritis.