

SH58: What is the role of IV vs oral antibiotics in the treatment of acute shoulder PJI? Does the treatment change based on the diagnostic criteria (Definite vs Probable vs Possible)?

Liaison: Benjamin Zmistowski

Lead delegate: Simon Warren

Supportive delegate: Mariano E. Menendez, Mohammad Ghoraishian

Recommendation: There is limited evidence to support a preferred route of antibiotic administration in acute shoulder PJI. There is even less evidence supporting a different strategy based on diagnostic criteria.

Strength of recommendation: Limited

Delegate Vote: 51 (98%) agree; 0 disagree; 1 (2%) abstain

Rationale: A comprehensive literature review was performed to identify all studies on the optimal oral or iv antibiotic treatment in cases of acute shoulder PJI. Searches for the terms “prosthesis-related infections”, “prosthetic joint infection”, “shoulder”, “oral antibiotics”, and “intravenous antibiotics” were performed using the search engines Medline, Embase, and Google Scholar with no time restriction. MESH terms were used but key words were also included. This identified 61 papers in Medline, 47 in Embase, and 0 in a Google Scholar title search. Following a title and abstract screen 13 papers were selected for further review.

Inclusion criteria for systematic review were all English language studies (Level I-IV evidence) that reported on oral or intravenous antibiotic treatment in cases of shoulder PJI. Exclusion criteria were non-English language articles, non-human studies, retracted papers, case reports, review papers, studies with less than <10 patients in the sample size, studies without clinical follow-up/infection rates, and technique papers without patient data. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) criteria were followed. Three articles meeting inclusion and exclusion criteria were identified.

Current recommendations for treatment following revision for PJI have suggested prolonged use of parenteral antibiotics. The origin of these recommendations is not clear and several groups are challenging both the need for parenteral antibiotics and the need for prolonged regimens. Moreover, there is little consensus on specific oral or intravenous regimens.

In 2019 Li et al published a large study of 1054 patients comparing oral vs intravenous antibiotics in orthopaedic infections [1]. Oral antibiotic therapy was non-inferior to intravenous antibiotic therapy when used during the first 6 weeks for complex orthopaedic infections, assessed by treatment failure at 1 year. This study included all orthopaedic infection, including DFI, spinal infection, osteomyelitis, and septic arthritis as well as PJI. From the supplementary data there were 102 upper limb patients (9.67%), however, the proportion involving a shoulder PJI was not specified. Outcomes slightly favoured intravenous treatment, however, the confidence intervals were very wide and lacked statistical significance. Additionally, the study did not specify the antibiotic regimen, they only mentioned whether they were oral or intravenous.

A retrospective French multi-centre study published in 2024 included 172 patients with PJI of which 10 (6%) involved the shoulder joint [2]. There was no categorization according to acute or chronic infection, however, 131 (76%) were managed with a DAIR strategy. Across the whole population the study demonstrated that 6 weeks of oral antibiotics was associated with a similar rate of management failure compared with intravenous treatment after a follow up period of 24 months. The most common intravenous regimen was piperacillin/tazobactam plus vancomycin and the most common oral regimens used were a rifampicin and fluoroquinolone combination, cotrimoxazole or clindamycin.

Several studies, including 2 systematic reviews, have assessed an early switch to oral antibiotics following surgical treatment for PJI. These have generally found that an early switch to oral therapy is non-inferior to continuing intravenous therapy [3-6]. However, these studies are all retrospective, have included few or no shoulder arthroplasties, and were heterogenous in design.

In a study of 175 patients undergoing revision shoulder arthroplasty for possible infection Yao et al compared complications associated with different treatment strategies [7]. They found that complications were not infrequent and were significantly more common in the group receiving intravenous antibiotics, (mostly ceftriaxone and/or vancomycin) compared with the group receiving oral antibiotics, (mostly co-amoxiclav or doxycycline). In what was presumably a subset of that cohort the same authors subsequently looked at clinical outcomes [8]. They retrospectively looked at 92 patients treated with either intravenous or oral antibiotics based on the initial strength of clinical suspicion of infection, which were then adapted following culture results. They found no significant difference in revision or infection recurrence rates at 2 years.

References:

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