Guideline: Acute Periprosthetic Joint Infection

Purpose

This guideline has been created by the Counties Manukau Periprosthetic Joint Infection Working group and covers the acute management of suspected periprosthetic joint infection (PJI).

Scope of Use

This guideline is applicable to all registered medical officers working in Orthopaedics in CMDHB.

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Guideline

A. The clinically unwell/unstable patient

1) Establish adequate intravenous (IV) access and perform fluid resuscitation

2) Take TWO sets of peripheral blood cultures from different sites

3) Joint aspiration

- Knees should be aspirated in the Emergency Department
- Hips (where possible) should have radiologically guided aspiration under local anaesthetic in theatre IF THIS WILL NOT UNDULY DELAY EMPIRIC TREATMENT

4) Start empiric antibiotics (see table 1: Empiric antibiotics)

5) Pre-operative work-up

- X-rays of the affected joint
- ECG
- CXR (at anaesthetic discretion)
- Pre-operative optimisation
    - Fluid status
    - Glucose control
    - Haemoglobin

6) Urgent surgical debridement

- Microbiological sampling
  - ≥5 deep periprosthetic tissue samples should be taken for microbiology
  - Aspiration of pus for microbiology is also encouraged
  - Sampling should utilise the *"Debridement and Biopsy set"*

Table 1: Empiric Antibiotics

	Empiric Antibiotics[1]
1st line empiric antibiotics[2]	1) Cefuroxime IV 1.5g Q8hrly (may need *renal dosing*) 2) Vancomycin (as per the *Vanculator*)
Empiric antibiotics for penicillin anaphylaxis[3]	1) Vancomycin (as per the *Vanculator*) 2) Aztreonam IV 2g Q8hrly (may need *renal dosing*)

[1] Where there is previous microbiology available from previous infection affecting the same joint, the Infectious Diseases (ID) service should be consulted to tailor the initial empiric regime.

[2] Cefuroxime should be administered prior to vancomycin

[3] Vancomycin should be administered prior to aztreonam

B. The clinically well/stable patient

1) Establish adequate intravenous (IV) access and administer fluids as required

2) Take TWO sets of peripheral blood cultures from different sites

3) Joint aspiration

- Knees should be aspirated in the Emergency Department
- Hips (where possible) should have radiologically guided aspiration under local anaesthetic in theatre or via the radiology department.

4) DO NOT start any antibiotics UNLESS THE PATIENT BECOMES UNWELL

- If the patient becomes unwell/unstable:
  1) Start empiric antibiotics (see table 1 above)
  2) Expedite surgical debridement and culture

5) Pre-operative work-up

- X-rays of the affected joint
- ECG
- CXR (at anaesthetic discretion)

- Pre-operative optimisation
    - Fluid status
    - Glucose control
    - Haemoglobin

6) Planned surgical debridement at the earliest available opportunity

- Do NOT give any antibiotics until AFTER microbiological sampling has been completed
    - ≥5 deep periprosthetic tissue samples should be taken for microbiology
    - Aspiration of pus for microbiology is also encouraged
    - Sampling should utilise the *"Debridement and Biopsy set"*

7) AFTER completion of microbiological sampling, start empiric antibiotics (table 1 above)

- There is NO need to give usual surgical antibiotic prophylaxis

8) Document in the written and dictated notes the initial management decision (e.g. Debridement, Antibiotics and Implant Retention (DAIR) with curative or suppressive intent, 1-stage revision, 2-stage revision etc)

- Note that the initial surgical decision can always be revised as new information becomes available

C. **Post-operative care**

1) Request PICC insertion (unless inserted in theatre or significant doubt regarding infection diagnosis following operative inspection)

2) Optimise patient

- Nutritional status (protein supplementation etc)
- Diabetic control
- Venous thromboembolism prophylaxis

3) Infectious Diseases department consultation

- Where there is microbiology available prior to surgery for infection of the same joint, the initial antibiotic regimen should be discussed with the ID service on call
    - ID registrar during business hours (Mobile *3695)
    - ID consultant after hours via switchboard
- All other cases can be referred the next working day (or during the day as microbiology becomes available)

References

1. Parvizi J and Della Valle CJ. AAOS Clinical Practice Guideline: Diagnosis and Treatment of Periprosthetic Joint Infections of the Hip and Knee. J Am Acad Orthop Surg December 2010. 18:771-772
2. Osmon DR et al. Diagnosis and Management of Prostethic Joint Infection: Clinical Practice Guidelines by the Infectious Diseases Society of America. Clinical Infectious Diseases. January 2013. 56: 1-25
3. Expert panel: CMH Orthopaedic and Infectious Diseases deparments. Mr. Robert Orec[1], Mr. Rocco Pitto[1], Mr. Alpesh Patel[1], Mr. Wolfgang Heiss-Dunlop[1], Dr. David Holland[2], Dr. Stephen McBride[2], Dr. Genevieve Walls[2], Dr. Christopher Luey[2] & Dr. Susan Taylor[3]. ([1] Department of Orthopaedics, Counties Manukau District Health Board; [2] Department of Infectious Diseases, Counties Manukau District Health Board; [3] Department of Microbiology, Counties Manukau District Health Board).

Associated Documents

Other documents relevant to this guideline are listed below:

NZ Legislation & Standards	None
CM Health Documents	Periprosthetic Joint Infection Sampling guideline Surgical strategies in the management of periprosthetic joint infections Vancomycin guideline - Vanculator
Other related documents	None