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Antibiotic requirements

for patients with Total Hip or Knee Replacement having dental treatment

It has been common practise in Australia and Internationally to give patients with total hip or total knee replacements antibiotics prior to dental treatments to decrease the risk of infection of the joint replacement.

Most antibiotic coverage is not evidence based but rather anecdotal, historical or medico-legally based. The decision to cover with antibiotics needs to be individually assessed relative to both the health of the patient and the dental procedure being performed.

Bugs released into the blood stream from the mouth can travel around the body to rest in an artificial joint or elsewhere (e.g. heart valves) where they can live and replicate. An infected joint replacement results in pain, disability and increased risk of significant morbidity and mortality from treatment. All joint infections require intensive and prolonged treatment.

Dental Procedure

It has been proven that bacteria enter the blood stream from dental disease and treatment. Infact oral bacteria enter the blood stream simply from chewing or tooth-brushing but the amount is small and short lived. General dental treatment such as local anaesthetic injection, fillings, impressions and dentures do not cause significant bacteraemia above normal tooth-brushing.

In general the longer the dental treatment lasts (> 45 minutes) the greater the amounts of bugs released into the blood stream (bacteraemia). Large numbers of bacteria of different types are released into the blood with dental extraction in the setting of gum disease, deep scaling of the gums or oral infection. These patients require antibiotic coverage.

The **timing of dental treatment is important and all non-emergency treatment should be deferred until 3 to 6 months after treatment** and the joint replacement has stabilised and is functioning well.

This is one of the reasons we recommend a dental check prior to surgery.

Patient Health

A patient may have one or more conditions which prevent their body from fighting bugs once they enter the blood stream from the gums. These people are described as **immunocompromised** and are at higher risk of infection. Common conditions are;

- • medication – immunosuppressives . e.g. prevent rejection of transplanted organs.
- • Diabetes Mellitus.
- • Rheumatoid Arthritis.
- • Cancer.
- • General poor medical condition.
- • Obesity.
- • Smoking.

Recommendation for dental treatment of patients with hip or knee Replacement

Dental problems in the first 3 months following hip or knee joint replacement surgery

Infection with abscess formation:

- • Urgent and aggressive treatment of the abscess. Remove the cause (exodontic or endodontic) under antibiotic prophylaxis.

Pain:

- • Provide emergency dental treatment for pain. Antibiotics are indicated if a high or medium risk dental procedure performed.

Non-infective dental problem without pain:

- • Defer non-emergency dental treatment until 3 to 6 months after prosthesis replacement.

Dental treatment after 3 months in a patient with a normally functioning artificial joint

Routine dental treatment including extraction.
No antibiotic prophylaxis required.

Dental treatment for patients with significant risk factors for prosthetic joint infection

Immunocompromised patients include:

- those with insulin-dependent diabetes.
- those taking immunosuppressive treatment for organ transplants or malignancy.
- those with systemic rheumatoid arthritis.
- • those taking systemic steroids (e.g.; patients with severe asthma, dermatological problems).

Consultation with the patient's treating physician is recommended.

Failing, particularly chronically inflamed, artificial joints:

- • Consultation with the patient's treating orthopaedic surgeon is recommended.
- • Defer non-essential dental treatment until orthopaedic problem has resolved.

Previous history of infected artificial joints:

- • Routine non-surgical dental treatment – no prophylaxis indicated.

Recommended antibiotic regimens where Indicated

1. 1. *Dental clinic LA extractions or deep curettage.*
   ◊◊ Amoxicillin 2-3g orally 1 hour prior to Procedure.
2. *Theatre procedures*
   ◊◊ Amoxicillin 1g I/V at induction.
   ◊ ◊ **Followed** by 500mg amoxicillin I/V or orally 6 hours later.

3. *Penicillin hypersensitivity, long term penicillin, recent penicillin/other B-lactam treatment.*
   ◊ ◊ Clindamycin 600mg 1 hour prior to procedure or Vancomycin 1g I/V 1 hour to finish 2 hours **or** Lincomycin 600mg just prior to the procedure.

4. *High risk case (i.e., Gross oral sepsis/severely immunocompromised/previous jt infection.)*
   ◊ ◊ Gentamicin 2mg/kg I/V just before procedure (can be administered 3mg/kg provided there is no concomitant renal disease).
   ◊ ◊ **PLUS** Amoxicillin 1g I/V just before procedure followed by 500mg I/V or orally 6 hours later.
   ◊ ◊ If hypersensitive to penicillin replace amoxicillin with Vancomycin 1g I/V over 1 hour to finish just before procedure.

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