

MANAGEMENT OF ACUTE RHEUMATIC FEVER

Quick Reference Guide for Health Professionals



This quick reference guide is derived from 'National Heart Foundation of Australia (NHFA) and the Cardiac Society of Australia and New Zealand (CSANZ) Diagnosis and management of acute rheumatic fever and rheumatic heart disease in Australia — an evidence-based review. 2006'.

What is acute rheumatic fever?

Acute rheumatic fever (ARF) is an auto-immune response to bacterial infection with group A streptococcus (GAS). People with ARF are often in great pain and require hospitalisation. After the acute episode, rheumatic heart disease (RHD) — damage to the heart valves — may remain. People who have had ARF previously are much more likely than the wider community to have subsequent episodes. Recurrences of ARF may cause further valve damage, leading to steady worsening of RHD.

Who gets acute rheumatic fever?

Although ARF is relatively rare in industrialised countries, it is a significant cause of disease among Aboriginal and Torres Strait Islander peoples. Incidence of RHD is also high among these populations, with significant rates of procedures and death among young adults.

Problems with diagnosis and management

Several factors contribute to inadequate diagnosis and management of ARF and RHD in Australia:

- although strategies for preventing RHD are proven, simple, cheap and cost-effective, they are not adequately implemented in the populations at highest risk of the disease;
- because ARF is rare in most metropolitan centres, the majority of clinicians will have seen very few, if any, cases of ARF;
- there is variability in the management of these diseases, with lack of up-to-date training and experience in the management of ARF and RHD occasionally resulting in inappropriate management; and
- access to health care services by population groups experiencing the highest rates of ARF and RHD is limited.

CONFIRMING THE DIAGNOSIS

- Diagnostic criteria, recommended investigations and detailed information on differential diagnoses are given in the quick reference guide *Diagnosis of Acute Rheumatic Fever*.
- As the arthritis, arthralgia and fever of ARF respond to non-steroidal anti-inflammatory drugs (NSAIDs), which may prevent the full clinical manifestations becoming apparent,

it is recommended that joint pain be treated with paracetamol or codeine until the diagnosis is confirmed.

- There is convincing evidence that subclinical or silent rheumatic valve damage detected by echocardiography is part of the spectrum of rheumatic carditis and should not be ignored.

GUIDELINES FOR GENERAL IN-HOSPITAL CARE

- Ideally, all patients with suspected ARF (first episode or recurrence) should be hospitalised as soon as possible after onset of symptoms.
- While in hospital, the patient should be registered in centralised and local ARF/RHD registers.
- Occasionally, when the diagnosis has already been confirmed and the patient is not unwell (eg mild recurrent chorea in a child with no other symptoms or signs), outpatient management may be appropriate.

TREATMENT

All cases

Single-dose intramuscular benzathine penicillin G (preferable) or 10 days oral penicillin V (intravenous not needed, oral erythromycin if allergic to penicillin)

Arthritis and fever

Aspirin (first line) or naproxen once diagnosis confirmed, if arthritis or severe arthralgia present. Paracetamol (first line) or codeine until diagnosis confirmed

Mild arthralgia and fever may respond to paracetamol alone

Influenza vaccine for children receiving aspirin during the influenza season (autumn/winter)

Chorea

No treatment for most cases

Carbamazepine or valproic acid if treatment necessary

Carditis/heart failure

Bed rest

Urgent echocardiogram

Anti-heart-failure medication:

- diuretics/fluid restriction for mild or moderate failure
- ACE inhibitors for more severe failure, particularly if aortic regurgitation present
- glucocorticoids optional for severe carditis (consider treating for possible opportunistic infections)
- digoxin if atrial fibrillation present

Valve surgery for life-threatening acute carditis (rare)

NURSING RECORDINGS

Temperature, pulse, respiratory rate, blood pressure 4 times daily

Sleeping pulse (eg 0200 hrs)

If pulse >100, apical heart rate

DIET

Free fluids (if no heart failure)

Normal diet (limit extras)

Early dietary advice if overweight and in failure, to avoid further weight gain

Weekly weight

BED REST AND GENERAL CARE

Strict bed rest not necessary for most patients

Gradual ambulation for patients with heart failure or severe acute valve disease

Plan care to provide rest periods

Provide age-appropriate activities

Notify school teacher

Involve family in care

IF CLINICAL CARDITIS PRESENT (HEART MURMUR, HEART FAILURE, PERICARDIAL EFFUSION, VALVULAR DAMAGE)

Document cardiac symptoms and signs

Daily weight and fluid balance chart

Diuretics, ACE inhibitors, digoxin if indicated. Consider glucocorticoids

Anticoagulation if atrial fibrillation present

Cardiology opinion

MEDICATIONS USED IN ACUTE RHEUMATIC FEVER

MEDICATION	INDICATION	REGIMEN	DURATION
Benzathine penicillin G IM or	Treat streptococcal infection	900mg (1,200,000 U) \geq 20kg 450mg (600,000 U) <20kg	Single dose
Penicillin V po or	Treat streptococcal infection	250mg bd children 500mg bd adolescents and adults	10 days
Erythromycin ethyl succinate po (only if penicillin allergic)	Treat streptococcal infection	20mg/kg (max 500mg) bd	10 days
Paracetamol po	Arthritis or arthralgia (mild) until diagnosis confirmed	60mg/kg/day (max 4g) given in 4–6 doses/day; may increase to 90mg/kg/day if needed, under medical supervision	Until symptoms relieved or NSAID started
Codeine po	Arthritis or arthralgia until diagnosis confirmed	0.5–1.0mg/kg/dose (adults 15–60mg/dose) 4–6 hrly	Until symptoms relieved or NSAID started
Aspirin po	Arthritis or severe arthralgia (when ARF diagnosis confirmed)	80–100mg/kg/day (4–8g/day in adults) given in 4–5 doses/day Reduce to 60–70mg/kg/day when symptoms improve Consider ceasing in the presence of acute viral illness, and consider influenza vaccine if administered during autumn/winter	Until joint symptoms relieved
Naproxen po	Arthritis (if aspirin intolerant)	10–20mg/kg/day (max 1,250mg) given bd	As for aspirin
Prednisone or prednisolone po	Severe carditis, heart failure, pericarditis with effusion	1–2mg/kg/day (max 80mg). If used >1 week, taper by 20–25% per week	Usually 1–3 weeks
Furosemide po/IV (can also be given IM)	Heart failure	Children: 1–2mg/kg stat, then 0.5–1mg/kg/dose 6–24 hrly (max 6mg/kg/dose) Adults: 20–40mg/dose 12–24 hrly, up to 250–500mg/day	Until failure controlled and carditis improved
Spirolactone po	Heart failure	1–3mg/kg/day (max 100–200mg/day) in 1–3 doses Round dose to multiple of 6.25mg (quarter of a tab)	As for furosemide
Enalapril po	Heart failure	Children: 0.1mg/kg/day in 1–2 doses, increased gradually over 2 weeks to max of 1mg/kg/day in 1–2 doses Adults: initial: 2.5mg daily maintenance: 10–20mg daily (max 40mg)	As for furosemide
Lisinopril po	Heart failure	Children: 0.1–0.2mg/kg once daily, up to 1mg/kg/dose Adults: 2.5–20mg once daily (max 40mg/day)	As for furosemide
Digoxin po/IV	Heart failure/atrial fibrillation	Children: 15mcg/kg stat and then 5mcg/kg after 6 hrs, then 3–5 mcg/kg/dose (max 125mcg) 12 hrly Adults: 125–250 mcg daily Check serum levels	Seek advice from specialist
Carbamazepine	Severe chorea	7–20mg/kg/day (7–10mg/kg/day usually sufficient) given tds	Until chorea controlled for several weeks, then trial off medication
Valproic acid po	Severe chorea (may affect salicylate metabolism)	Usually 15–20mg/kg/day (can increase to 30mg/kg/day) given tds	As for carbamazepine

COMMENCING LONG-TERM PREVENTIVE MEASURES

Secondary prevention

- As outlined in the previous table, penicillin is given in cases of ARF to ensure eradication of streptococci that may persist in the upper respiratory tract. As this could be considered the commencement of secondary prophylaxis, it may be advisable to use intramuscular benzathine penicillin G (BPG).
- Some clinicians prefer to use oral penicillin while patients are in hospital, and to defer the intramuscular injection until there has been improvement and patients and their families have been properly counselled about secondary prophylaxis.
- Patients with reliably documented penicillin allergy may be treated with oral erythromycin. However, most patients labelled as being allergic to penicillin are not. It is recommended that patients with stated penicillin allergy be investigated carefully, preferably with the help of an allergist, before being accepted as truly allergic.

Secondary prevention is discussed in greater detail in the quick reference guide *Secondary Prevention of Acute Rheumatic Fever*.

Advice on discharge

- All patients should have a good understanding of the cause of ARF and the need to have sore throats treated early. Family members should be informed that they are at increased risk of ARF compared to the wider community.
- Patients and families should understand the reason for secondary prophylaxis and the consequences of missing a BPG injection. They should be given clear information about where to go for secondary prophylaxis, and written information on appointments for follow-up with their local medical practitioner, physician/ paediatrician and cardiologist (if needed).
- If there is cardiac valve damage, patients and families should also be reminded of the importance of antibiotic prophylaxis for dental and other procedures to protect against endocarditis.

Contact local health staff for follow-up

- The notifying medical practitioner should make direct contact with community medical staff so that they are aware of the diagnosis, the need for secondary prophylaxis, and any other specific follow-up requirements.

FURTHER INFORMATION

The full evidence-based review from which this quick reference guide is derived provides detailed information on the diagnosis and management of ARF, secondary prevention and RHD control programs, and diagnosis and management of RHD.

Other other quick reference guides are:

- *Diagnosis of Acute Rheumatic Fever*
- *Secondary Prevention of Acute Rheumatic Fever*
- *Rheumatic Heart Disease Control Programs*
- *Management of Rheumatic Heart Disease*.



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