Acute rheumatic fever iap guidelines

Procedures that increase risk of Endocarditis

DENTAL PROCEDURES	OTHER PROCEDURES
Dental extractions	Tonsillectomy/adenoidectomy
Periodontal procedures	Bronchoscopy with a rigid bronchoscope
Dental implant placement	Surgery involving the bronchial mucosa
Gingival surgery	Sclerotherapy of oesophageal varices
Initial placement of orthodontic appliances	Dilatation of oesophageal stricture
Surgical drainage of dental abscess	Surgery of the intestinal mucosa or biliary tract
Maxillary or mandibular osteotomies	Endoscopic retrograde cholangiography
Surgical repair or fixation of a fractured jaw	Prostate surgery
Endodontic surgery and instrumentation	Cystoscopy and urethral dilatation
Intra-ligamentary local anaesthetic injections	Vaginal delivery in the presence of infection, prolonged labour or prolonged rupture of membranes
Dental cleaning where bleeding is expected	Surgical procedures of the genitourinary tract in the presence of infection
Placement of orthodontic bands	

WORLD HEART FEDERATION

Revised Jones criteria, 2015

	Low risk population	Moderate /high risk population	
Major criteria			**Evidence of recent GAS infection**
Carditis Arthritis	Clinical and/or **subclinical** Polyarthritis Chorea Erythema marginatum Subcutaneous nodules	Clinical and/or **subclinical** **Monoarthritis**, polyarthritis and/or **polyarthralgia** Chorea Erythema marginatum Subcutaneous nodules	Positive throat culture or rapid streptococcal antigen test Elevated or increasing streptococcal antibody titer.
Minor criteria			
Arthralgia Fever Markers of inflammation	Prolonged PR interval Polyarthralgia >38.5c Peak ESR >60 mm/hr and/or CRP >3.0 mg/dl	Prolonged PR interval **Monoarthralgia** **>38c** Peak ESR >**30 mm/hr** and/or CRP >3.0 mg/dl	

Additional file 1: Content of Acute Rheumatic Fever and Rheumatic Heart Disease Clinical Audit Tool

(formatted here as a list due to space constraints. See www.one21seventy.org.au for formatted version created for data collection.)

1.1 Person ID
1.2 Medicare number recorded in notes
1.3 Date of Birth
1.4 Age at date of audit
1.5 Sex
1.6 Indigenous status: Aboriginal /Torres Strait Islander / Both / Neither / Not stated
1.7 Auditor's initial & surname
1.8 Audit Date

2.1 Date last attended
2.2 Location of record of date last attended: Yes / No
- Medical record paper / electronic / both

2.3 Reason for last attendance:
- Acute care Benzathine penicillin injection / ARF - RHD prophylaxis with oral medication / Well person's check / Specialist review / Other

2.4 First seen by:
- Aboriginal &/or Torres Strait Islander Health Worker / Nurse / Doctor / Specialist / Allied health professional / Other / Not Stated

2.5 If client not seen in last 12 months is there any record of unsuccessful follow-up attempt since last attendance? Yes / No

3.1 Is there a record of the following diagnoses on the Health Summary Sheet?
- Definite or suspected acute rheumatic fever (first episode) / Recurrent or suspected recurrent acute rheumatic fever / Rheumatic heart disease

- **3.2** If diagnoses not recorded on Health Summary Sheet, are diagnoses recorded elsewhere in Medical Record?
  - Definite or suspected acute rheumatic fever (first episode)
  - Recurrent or suspected recurrent acute rheumatic fever
  - Rheumatic heart disease

3.3 Where in the client's medical record/s is the
- client's RHD category (according to the RHD register) recorded?
- On Health Summary Sheet / Elsewhere in Medical Record /
- Not Recorded

3.10 If the client's classification is High Risk, is there documentation indicating prior cardiac surgery? Yes / No

3.11 If the client's classification is High Risk, is there documentation in the file indicating the client is awaiting cardiac surgery? Yes / No

3.12 If the client's classification is High Risk or Medium Risk, is the client currently prescribed Warfarin? Yes / No

3.13 If the client is prescribed Warfarin, please record the two most recent INRs including results and dates of these tests:
INR 1 / INR 2

4.1 Is the client prescribed regular benzathine penicillin injections?
- Yes / No

4.2 Is the client prescribed oral antibiotic prophylaxis for rheumatic fever instead of benzathine penicillin injections?
- Yes / No

4.3 Is there a current prescription for benzathine penicillin injections?
- Yes / No

4.4 Where in the Medical Record is the planned frequency of injections recorded?
- Current prescription / Non-current prescription / Elsewhere in medical record / Not recorded / N/A

4.5 Is the planned frequency of injections recorded in a clinic master chart?
- Yes / No

4.6 If recorded in both the client's medical record and the clinic master chart, are the two records consistent?
- Yes / No

4.7 If not consistent, which one is currently used?
- Medical record / Clinic master chart / N/A

- *Please record the number of benzathine penicillin injections given over the last 12 months.*
- *Note: a client on **MONTHLY** injections should have 12 injections in 12 months;*
- *a client on **4 WEEKLY** injections should have 13 injections in 12 months;*
- *a client on **3 WEEKLY** injections should have 17 injections in 12 months.*

4.8 Frequency of injections **planned**
- Monthly / 4-weekly / 3-weekly / other / not recorded / NA

4.13 Number of **recorded episodes** of recurrent rheumatic fever in the last 12 months:

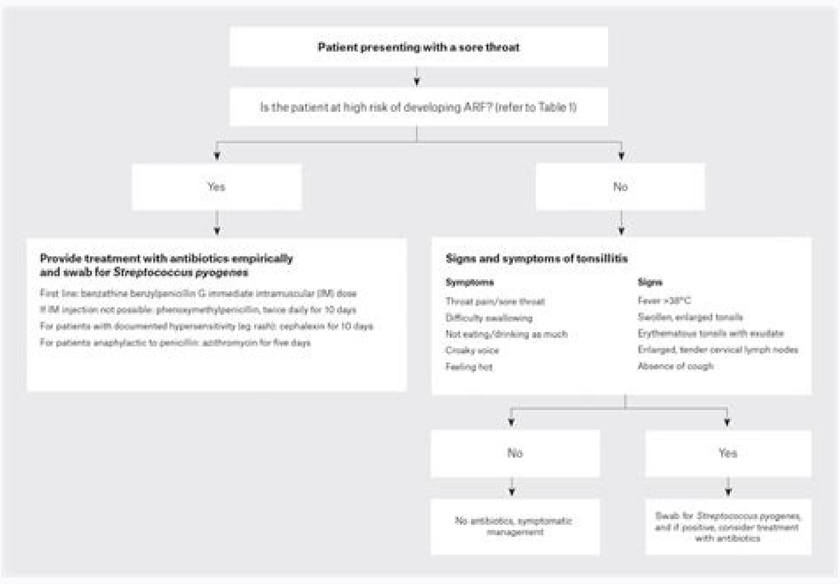
4.14 If ≥1 episode of recurrent rheumatic fever recorded in the last 12 months despite good delivery of benzathine penicillin (80% or more of scheduled), Is there a record of:
- change to more frequent benzathine penicillin injections?
- advice on the role of throat and skin infections in leading to ARF?
- advice on the role of overcrowding in predisposing to ARF?
- action plan made?
- referral to support services (for example, environmental health services, housing services)? other appropriate action?
- Details: _____

- ***Doctor Review** is recommended 6 monthly for High Risk and Medium Risk clients and yearly for Low Risk clients.*
- ***Cardiologist/physician/ paediatrician review** is recommended 6 monthly for High Risk clients, yearly for Medium Risk clients.*
- ***Echocardiogram** is recommended 6 monthly for High Risk clients, yearly for Medium Risk clients, 2 yearly for Low Risk clients*
- *under 15 years and 5 yearly for Low Risk clients over 15 years.*
- ***Influenza vaccination** is recommended yearly for High Risk and Medium Risk clients.*
- ***Dental review** is recommended yearly for High Risk and Medium Risk clients.*
- ***Polysaccharide pneumococcal vaccination (Pneumovax 23)** is recommended for High Risk and Medium Risk clients.*

5.1 Is there a **record of each of the following services** having been provided within the timeframes shown:
- Doctor review (within 2 years)/ Cardiologist/ physician/ paediatrician review (within 2 years) / Echocardiogram (within 3 years) /Influenza vaccination (within 2 years) / Dental review (within 2 years) / Polysaccharide pneumococcal vaccination (Pneumovax 23)
- (record 3 most recent immunisations)

Management

- Treatment strategies can be divided into management
  - acute attack,
  - management of the current infection
  - prevention of further infection and attacks.
- **Management of the acute attack**
  - Single dose of **benzyl penicillin** 1.2 million U i.m.
  - Oral **phenoxymethylpenicillin** 250 mg 6-hourly for 10 days
  - Penicillin-allergic: erythromycin or a cephalosporin
  - **Analgesia**: optimally achieved with high doses of **salicylates**
- Treatment is then directed towards limiting **cardiac damage** and **relieving symptoms**.



Iap guidelines for rheumatic fever. Acute rheumatic fever treatment guidelines. Acute rheumatic fever guidelines 2020.

Guideline for diagnosis, management and secondary prevention of acute rheumatic fever and rheumatic heart disease.This guideline for the diagnosis, management and secondary prevention of acute rheumatic fever (ARF) and rheumatic heart disease (RHD) was published in 2014. As a result of the 2019 update to the Group A Streptococcal Sore Throat Management Guideline the following medication regimes have changed, but have not been updated in this document.Page referenceMedication2014 ARF and RHD GuidelineMedication regime change in 2019 GAS Guideline Update13PhenoxymethylpenicillinTwice daily2-3 times daily13, 29AmoxicillinOnce daily1-2 times daily26, 29, 36, 70Erythromycin max daily dose1000mg1600mg 1. ACUTE RHEUMATIC FEVER By – Dr. Akshat Khemka 2. What is Rheumatic Fever? Rheumatic fever is an immunological disorder that follows infection of the pharynx by Group-A beta-hemolytic streptococci. It is a non-infectious, non-suppurative sequelae of streptococcal pharyngitis and occurs 10days to several weeks after the attack of sore throat. 3. Epidemiology Age group : 5-15 years Gender : Incidence is equal in males and females. Mitral valve disease and chorea are common in females, and aortic valve involvement is common in males. Prevalence : 0.6/1000 Attack rate : 0.3% to 3% in children who are not treated or inadequately treated 4. Epidemiology Predisposing factors – low socioeconomic status, overcrowding, poor nutrition, poor hygeine Genetic predisposition – certain HLA markers and a specific B-cell alloantigen (D8/17) 5. Epidemiology Incidence of rheumatic fever is on the decline in developed countries, attributable mainly to A - antibiotic coverage has increased B - better housing C - conditions (economic & health) have improved D - decreased bacterial virulence E - easy access to medical care G - GAS strains prevalence has shifted from rheumatogenic to non- rheumatogenic 6. Etiology Group A beta-hemolytic streptococcus – pathogenic strains are M type 1, 3, 5, 6, 18, 24. Formation of highly mucoid colonies is associated with rheumatogenecity. Type 18 is the most virulent mucoid strain. Genetic predisposition Autoimmunity 7. Pathogenesis Two theories : 1. Cytotoxicity theory 2. Immune-mediated pathogenesis theory 8. Cytotoxicity theory A GAS toxin may be involved in the pathogenesis of acute rheumatic fever and rheumatic heart disease. Streptolysin O has a direct cytotoxic effect on mammalian cells in tissue culture. Drawback – inability to explain the latent period between GAS pharyngitis and the onset of acute rheumatic fever. 9. Immune-mediated pathogenesis Clinical similarity of acute rheumatic fever to other illnesses produced by immunopathogenic processes Explains the latent period between between GAS pharyngitis and acute rheumatic fever Immunologic cross reactivity between GAS components (M protein, protoplast membrane, cell wall group A carbohydrate, capsular hyaluronate) and specific mammalian tissues (heart, brain, joints) 10. Immune-mediated pathogenesis More support for an autoimmune phenomenon (Type II hypersensitivity reaction) During strep infection, antigen presenting cells present bacterial antigen to helper T cells. These helper T cells then activate B cells to induce production of antibodies against the Streptococcal cell wall. These antibodies can also interact with other cells in the body (for example, myocardium or joints, etc) producing the symptoms responsible with acute rheumatic fever. 11. Clinical manifestations It is commonly said that rheumatic fever 'bites the heart, licks the joint and kicks the brain'. Symptoms occur 1-5 weeks (average 2-3 weeks) after an initial attack of pharyngitis. History of preceding sore throat is present in 50% people. Fever, anoexia, lethargy, malaise may be present. Family history of rheumatic fever is often positive. 12. Revised Duckett Jone's Criteria Major manifestations (ACCESs) 1. Arthritis 2. Carditis 3. Chorea 4. Erythema marginatum 5. Subcutaneous nodules 13. Revised Duckett Jone's Criteria Minor manifestations 1. Clinical features – arthralgia, fever 2. Laboratory features - elevated acute phase reactants (ESR, CRP), polymorphonuclear leucocytosis (WHO update 2004) - Prolonged PR interval 14. Revised Duckett Jone's Criteria Supporting evidence of antecedent Group A streptococcal infection - Positive throat culture or rapid streptococcal antigen test - Elevated or increasing streptococcal antibody titer (anti-DNase B added in WHO update 2004) 15. Revised Duckett Jone's Criteria If supported by evidence of preceding group A streptococcal infection, the presence of two major manifestations or of one major and two minor manifestations indicates a high probability of acute rheumatic fever. 16. Special circumstances in which diagnosis of acute rheumatic fever can be made without strict adherence to the Jones criteria 1. Chorea – may occur as the only manifestation of acute rheumatic fever (other causes have to be ruled out) 2. Indolent carditis – insidious or late-onset carditis; patient comes to medical attention months after the onset of acute rheumatic fever 3. Rheumatic fever recurrence – in the presence of a documented RHD, even the presence of one criterion in the presence of supportive evidence of previous streptococcal infection suggests recurrence. (In the presence of the first two criteria, there is no requirement of supportive evidence of previous streptococcal infection) 17. Application of Jones criteria 1. First episode of ARF : 2 major or 1 major & 2 minor criteria + supportive evidence of previous streptococcal throat infection 2. Recurrence of ARF in a patient without established heart disease : 2 major or 1 major & 2 minor criteria + supportive evidence of previous streptococcal throat infection 3. Recurrence of ARF in a patient with established heart disease : 2 minor criteria + supportive evidence of 18. Application of Jones criteria 4. Rheumatic chorea & insidious onset rheumatic carditis : no requirement of other major manifestations or supportive evidence of previous streptococcal throat infection 5. Chronic valve lesions of RHD : do not require any other criteria to diagnose as rheumatic heart disease 6. Two major manifestations are always stronger than one major plus two minor manifestations. 19. Application of Jones criteria 7. Arthralgia or a prolonged PR interval cannot be used as a minor manifestation when using arthritis and carditis, respectively, as a major manifestation. 8. The absence of evidence of an antecedent group A streptococcal infection is a warning that acute rheumatic fever is unlikely (except when chorea is present). 20. Application of Jones criteria 9. The vibratory innocent (Still's) murmur is often misinterpreted as a murmur of MR and thereby is a frequent cause of misdiagnosis (or overdiagnosis) of acute rheumatic fever. The murmur of MR is a regurgitant-type systolic murmur (starting with the S1), but the innocent murmur is low pitched and an ejection type. A cardiology consultation during the acute phase minimizes the frequency of misdiagnosis. 10. The possibility of the early suppression of full clinical manifestations should be sought during the history taking. Subtherapeutic doses of aspirin or salicylate-containing analgesics may suppress full manifestations. 21. Arthritis 22. Arthritis Seen in 75% of patients with acute rheumatic fever Frequently the earliest manifestation Correlates temporally with peak anti- streptococcal antibody titers Typically involves larger joints – knees, ankles, wrists and elbows in that order Rheumatic joints are generally hot, red, swollen and exquisitely tender 23. Arthritis Joint involvement is characteristically migratory in nature – fleeting/migratory polyarthritis Dramatic response to salicylates (absence of such a response should suggest an alternative diagnosis) Typically not deforming Inverse relationship between the severity of arthritis and the severity of cardiac

involvement Jaccoud’s arthritis is a progressive deforming arthropathy of the hands and feet in young adults following recurrent rheumatic fever/SLE. 24. Features of rheumatic arthritis A – Asymmetric, acute, painful, polyarthritis B – Bone normal – no residual damage C – Common in children, complete recovery D – Dramatic response to salicylates E – Early manifestation of rheumatic fever F – Fleeting polyarthritis G – Good prognosis – subsides 25. Features of rheumatic arthritis I – Involves the large joints especially knees, ankles, elbows and wrists J – Joints are red, swollen and tender for a day to a week K – Knee joint is most commonly involved L – Large joints are involved M – Migratory polyarthritis 26. CARDITIS 27. CARDITIS Seen in 50-60% of patients with acute rheumatic fever Carditis and resultant chronic rheumatic heart disease are the most serious manifestations of acute rheumatic fever Characterized by pancarditis Endocarditis (valvulitis) is a universal finding Mitral valve is most commonly affected followed by aortic and tricuspid valves in that order 28. CARDITIS Valvular insufficiency is characteristic of both acute and convalescent stages of acute rheumatic fever, whereas valvular stenosis usually appears several years or even decades after the acute illness. 29. Carditis - Symptoms Dyspnoea due to CCF Syncope Pain due to pericarditis 30. Carditis - Signs 1. Endocarditis - pansystolic murmur of MR, early diastolic murmur of AR 2. Myocarditis – cardiomegaly, tachycardia disproportionate to fever, unexplained CCF, Carey Coomb’s murmur (delayed diastolic murmur due to mitral valve involvement), S3 gallop due to cardiac failure, S1 muffled or soft, conduction defects, arrhythmias, heart blocks 3. Pericarditis – chest pain, pericardial friction rub, pericardial effusion 31. Chest radiograph of an 8yr old patient with acute cardit 32. Carditis – Pathology Aschoff body in the atrial myocardium is the most characteristic feature of acute rheumatic fever. Left sided valves are commonly involved due to greater strain on these valves. Initially there is MR which is later followed by fibrosis of the valve leading to MS. McCallum’s patch is seen on the posterior wall of the left atrium above the mitral valve. Often this forms a nidus for infective endocarditis. 33. Carditis – Pathology Rheumatic vegetations are small beaded vegetations like warty nodules formed due to aggregation of platelet thrombi. Seen along the line of valve closure Surface exposed to forward flow is affected Adherence of leaflets at the commissures Verrucae also seen in chordae tendinae Valvulitis may resolve without deformity or may undergo fibrous scarring 34. Carditis - Pathology Microscopically, acute rheumatic carditis is marked by a peculiar form of granulomatous inflammation with so-called "Aschoff nodules" seen best in myocardium. These are centered in interstitium around vessels. 35. Carditis - Pathology Here is an Aschoff nodule at high magnification. The most characteristic component is the Aschoff giant cell. Several appear here as large cells with two or more nuclei that have prominent nucleoli. Scattered inflammatory cells accompany them and can be mononuclear or occasionally neutrophils. 36. Carditis - Pathology Another peculiar cell seen with acute rheumatic carditis is the Anitschkow myocyte. This is a long, thin cell with an elongated nucleus. 37. Association of severe carditis with joint involvement Arthritis – 10% Atrhralgia – 33% No joint involvement – 50% 38. Association of carditis with extracardiac manifestations Polyarthritis – 60-75% Chorea – 60-75% Subcutaneous nodules - >95% 39. Carditis sequelae (chronic) VALVULAR INVOLVEMENT IN RHD Mitral valve involvement 92-95% Aortic valve involvement (+MV) 20-25% Isolated aortic valve involvement 5-8% Tricuspid valve involvement 7-9% Pulmonary valve involvement Very rare 40. Carditis sequelae (chronic) Mitral stenosis Takes longer duration to develop after an attack of ARF Fibrosis of mitral ring, commissural adhesions Contracture of the valve leaflets, chordae & papillary muscles Dyspnoea with or without exertion is the most common symptom in older children. Orthopnoea, nocturnal dyspnoea, or palpitation is present in more severe cases. Opening snap, low pitched, rumbling mitral diastolic murmur with pre systolic accentuation ending in loud first sound 41. Carditis sequelae (chronic) Mitral stenosis 42. Mitral valve stenosis 43. Carditis sequelae (chronic) Mitral Regurgitation Most common valvular involvement in children with rheumatic heart disease Mitral valve leaflets are shortened because of fibrosis, resulting in mitral regurgitation Patients are usually asymptomatic with mild MR. Rarely, fatigue (caused by reduced forward cardiac output) and palpitation (caused by atrial fibrillation) develop. The hallmark of MR is a regurgitant systolic murmur starting with S1, grade 2 to 4/6, at the apex, with good transmission to the left axilla (best demonstrated in the left decubitus position). A short, low frequency diastolic rumble may be present at the apex. The S2 may split widely as a result of shortening of the LV ejection and early closure of the 44. Carditis sequelae (chronic) Mitral regurgitation 45. Mitral valve regurgitation 46. Carditis sequelae (chronic) Aortic insufficiency Sclerosis of aortic valve- distortion & retraction of the cup Characteristic cardiac murmur - early diastolic murmur An apical pre systolic murmur (Austin flint murmur) 47. The heart has been sectioned to reveal the mitral valve as seen from above left atrium. The mitral valve demonstrates the typical “fish-mouth” shape due chronic rheumatic scarring. 48. Chorea 49. Chorea Seen in 10-15% of patients with acute rheumatic fever Latent period – 3-6 months A/k/a Sydenham’s chorea, St. Vitus’ dance Neuropsychiatric disorder Neurologic signs - choreic movement and hypotonia Psychiatric signs - emotional lability, poor school performance, hyperactivity, separation anxiety, obsessions, and compulsions Exacerbated by stress and disappear 50. Chorea Clinical maneuvers to elicit features of chorea include - demonstration of milkmaid’s grip - spooning and pronation of the hands when the patient’s arms are extended - wormian darting movements of the tongue upon protrusion - examination of handwriting to evaluate fine motor movements 51. Chorea More common in prepubertal girls (8- 12 yrs) Self-limiting – lasts for 2-6 weeks Spontaneous recovery occurs within a few months Rarely leads to permanent neurologic sequelae 52. Erythema marginatum 53. Erythema marginatum 54. Erythema marginatum Early manifestation Rare (102F) Laboratory - elevated acute phase reactants (ESR, CRP) - prolonged PR interval – earliest sign of conduction blocks 60. Normal PR interval in different age groups Age group (years) PR interval (seconds) 3-12 0.16 12-14 0.18 >17 0.20 61. Supporting evidence of antecedent streptococcal infection (1) Increased or rising antistreptolysin O (ASO) titer - values above 333 Todd units are significant in children - sensitivity is 80% - rising titer is strong evidence of recent streptococcal infection 62. Supporting evidence of antecedent streptococcal infection Age group Significant levels (Todd units per millilitre) Children 5-15 years >333 Adults >250 Significant levels of ASO titer in children and adults 63. Supporting evidence of antecedent streptococcal infection The blood titers of antistreptolysin-O raised against extra cellular antigens of streptococci appear in 10 – 15 days and reach a peak in 3–4 weeks after the acute infection, and usually are maintained for 2–3 months before declining. 20% case may remain positive till 6 months. In absence of any major Jones’ criteria, isolated antibody titer rise of any level just suggest a past or present streptococcal infection and not the acute rheumatic activity. Hence unlike ESR and CRP it is not a minor criteria. There is no need to treat high ASO titers with secondary prophylaxis (Benzathine penicillin). To show the rising titer, in selected patients (having high suspicion of ARF but normal ASO titer) one can repeat it after 1 week . 64. Supporting evidence of antecedent streptococcal infection (2) Anti-deoxyribonuclease B (anti- Dnase B) titer - peaks after 6-8 weeks of infection Normal levels of Anti-Dnase B Titer Age group Normal levels Preschool children 1:60 units School children 1:480 units Adults 1:340 units 65. Supporting evidence of antecedent streptococcal infection (3) Positive throat culture – sensitivity of 25% - 40% (4) Recent scarlet fever/streptococcal sore throat – within previous 45 days (5) Rapid streptococcal antigen detection test 66. Supporting evidence of antecedent streptococcal infection 80-85% patients have an elevated titer if a single antibody is measured 95-100% patients have an elevated titer if 3 different antibodies are measured – ASO, Anti-Dnase B & antihyaluronidasePOLYARTHRITIS CARDITIS CHOREA ASO 80% 80% 30% ASO + Anti- Dnase B 95% 95% 80% 67. Other manifestations of rheumatic disease Fatigue Epistaxis Abdominal pain Anemia Skin rashes Respiratory problems such as pneumonia, pleuritis, pleurisy, pleural effusion 68. Clinical course 1. Only carditis can cause permanent cardiac damage. Signs of mild carditis disappear rapidly in weeks, but those of severe carditis may last for 2 to 6 months. 2. Arthritis subsides within a few days to several weeks, even without treatment, and does not cause permanent damage. 3. Chorea gradually subsides in 6 to 7 months or longer and usually does not cause permanent neurologic 69. Differential diagnosis of acute rheumatic fever ARTHRITIS CARDITIS CHOREA Rheumatoid arthritis Viral myocarditis Huntington chorea Reactive arthritis (Shigella, Salmonella, Yersinia) Viral pericarditis Wilson disease Serum sickness Infective endocarditis SLE Sickle cell disease Kawasaki disease Cerebral palsy Malignancy Congenital heart disease Tics SLE Mitral valve prolapse Hyperactivity Lyme disease (Borrelia burgdorferi) Innocent murmurs Gonococcal infection 70. Differences between Rheumatic Arthritis and Rheumatoid Arthritis Features Rheumatic Arthritis Rheumatoid Arthritis Age Children>3yrs, usually 5-15 yrs May occur in children 60ml/m2 -Radius: wall thickness ratio at end systole multiplied by systolic pressure: 195mmHg -PA pressure> 50mmHg 107. Surgery in mitral regurgitation MV repair : early intervention MV replacement : one must wait 108. Follow-up 6 month to yearly interval close watch for 1. Patients with suboptimal valvotomy or significant MR 2. Patient having additional valve lesions 3. Use of ACE inhibitors/vasodilators in significant MR 4. Medical therapy : selected patients with decongestive, digoxin 5. Anticoagulation : Patients with atrial fibrillation- INR 2- 2.5 6. Surgical intervention in symptomatic patients. 7. SBE prophylaxis 109. Aortic valvular disease Isolated aortic stenosis is less common than combined lesion. Rheumatic AS : Result of balloon valvuloplasties are bad and valve replacement is choice. Ross procedure is not a good choice in these cases & must be avoided. 110. Surgery in aortic stenosis Indications : Symptomatic patient Mean gradient >40mmHg Aortic valve area 600mmHg Modality : prosthetic valve replacement 112. Prosthetic valves used Starr-Edward (caged ball & socket type) St. Jude (tilting disc, bileaflet) Bjork-Shiley (tilting disc) 113. Prognosis of acute rheumatic fever The presence or absence of permanent cardiac damage determines the prognosis. The development of residual heart disease is influenced by the following three factors: 1. Cardiac status at the start of treatment : The more severe the cardiac involvement at the time the patient is first seen, the greater the incidence of residual heart disease. 2. Recurrence of rheumatic fever : The severity of valvular involvement increases with each recurrence. 3. Regression of heart disease : Evidence of cardiac involvement at the first attack may disappear in 10% to 25% of patients 10 years after the initial attack. Valvular disease resolves more frequently when prophylaxis is followed 114. Primary prevention Appropriate antibiotic therapy instituted before the 9th day of symptoms of acute GAS pharnygitis is highly effective in preventing 1st attacks of acute rheumatic fever from that episode. However, primary prevention is not possible in all patients because about 30% of the patients develop subclinical pharyngitis and therefore do not seek medical treatment. Another 30% of patients develop acute rheumatic fever without symptoms of streptococcal pharyngitis. 115. Secondary prevention Secondary prevention of rheumatic fever is defined as the continuous administration of specific antibiotics to patients with a previous attack of rheumatic fever, or well-documented rheumatic heart disease. The purpose is to prevent colonization or infection of the upper respiratory tract with group A beta- hemolytic streptococci and the development of recurrent attack of rheumatic fever. 116. Secondary prevention - drugs Agent Dose Mode Dose interval Benzathine Penicillin G 27kg (60lb) 1.2 million units Intramuscular Once every 21 days Penicillin V Children 250 mg b.i.d. Orally Daily Adolescents & adults 500 mg b.i.d. Orally Daily Sulfadiazine or sulfisoxazole 27kg (60lb) 1g once a day Orally Daily Allergic to penicillin and sulfonamides Erythromycin 40mg/kg/day b.i.d. Orally Daily 117. Duration of secondary prophylaxis Category Duration Rheumatic fever without carditis 5yrs from the last attack or until 21yrs of age, whichever is longer (18yrs acc. to IAP) Rheumatic fever with carditis but without residual heart disease (no valvular disease) 10yrs from the last attack or until 21yrs of age, whichever is longer (25yrs acc. to IAP) Rheumatic fever with carditis and residual heart disease (persistent valvular disease) ; following cardiac surgery As per WHO 2004 update : Lifelong prophylaxis or atleast till age of 40yrs 118. Tertiary prophylaxis To prevent development of infective endocarditis in children with rheumatic valvular lesions Prophylactic antibiotics are given prior to any surgical procedure Also includes surgical correction of deformities of the cardiac valves or replacement of the valves along with rehabilitation to prevent further damage 119. Sensitivity testing for benzathine penicillin Due to the fact that BPG is not suitable for intradermal injections sensitivity testing, current IAP recommendations are to use benzyl penicillin for skin testing. A penicillin skin test predicts only the presence of IgE antibodies for the major or minor penicillin determinants at the time of application and does not predict the future development of IgE-mediated reactions during subsequent courses of penicillin. This method is not capable of detecting all cases of possible penicillin allergy. 120. How to do sensitivity test Benzyl Penicillin 10,000 U/ml to be given for sensitivity test. Prick test must be used before intra dermal test for the patients getting their first injection (A drop of Benzyl Penicillin 10,000 U/ml to be kept on forearm volar surface- scratch with bifurcated needle). Then Intradermal test with both Benzyl Penicillin and control saline must be done (approximately 0.02ml at volar surface of forearm or lateral surface of arm). 121. How to do sensitivity test A wheel 2 mm more than control or 4 mm more than initial edema must be taken as positive test. Test reading time :15-30 minutes Rest of injections must be preceded by Benzyl Penicillin intradermal test. Control saline helps in recognizing the initial oedema due to intra dermal injection. The patient should not have taken antihistamines recently. 122. References 1. Nelson’s Textbook of Paediatrics, 19th edition 2. Park’s Paediatric Cardiology for practitioners, 5th edition 3. Clinical Paediatrics (Aruchamy Lakshmanaswamy), 3rd edition 4. Recommendations – NCMRHD IAP 2007 123. THANK YOU

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